HAYNES OFFICIAL GUIDE

YELLOWSTONE NATIONAL PARK

A. Dean and Jean M. Larsen
Yellowstone Park Collection

GREAT FALLS OF THE YELLOWSTONE—308 FEET.

HAYNES
OFFICIAL GUIDE

YELLOWSTONE NATIONAL PARK

Descriptive - Geological - Historical

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Preface

AS A GUIDE BOOK has a particular office, that of pointing out various places of interest, describing and picturing them, it is a matter of vital importance that the material be properly arranged.

This edition is complete and revised to date. Illustrations, descriptions, historical and geological data, maps and diagrams are properly arranged in the exact order of the Park tour.

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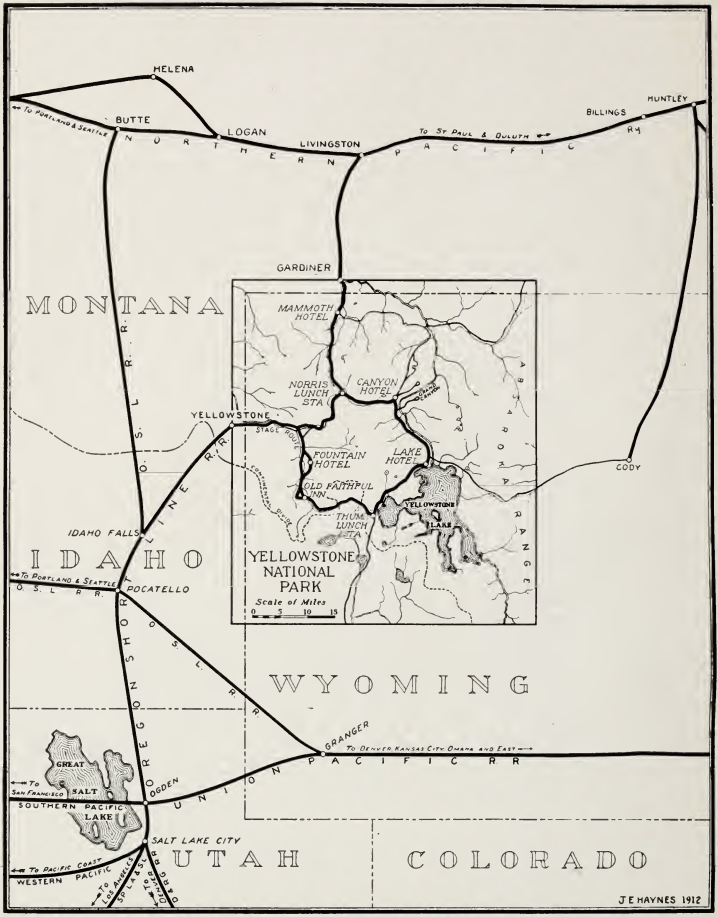
ILLUSTRATIONS



RAILWAY APPROACHES TO YELLOWSTONE PARK.

YELLOWSTONE NATIONAL PARK

IN the northwest corner of Wyoming, in the heart of the Rocky Mountains, is located Yellowstone National Park. Its boundaries overlap a few miles into Montana on the north, and Idaho and Montana on the west. The Park is 53.6 miles east and west and 61.8 miles north and south, giving an area of 3,312.5 square miles. No valley within its limits has an elevation of less than 6,000 feet, while many of the mountain peaks within and adjacent to the Park rise from 10,000 to 14,000 feet above sea level.

Yellowstone Lake, 15x20 miles in size, is the largest body of water in North America at this altitude (7,741 feet). Three of the largest rivers in the United States —the Missouri, Yellowstone and Columbia—have their sources in the Yellowstone Park. The geysers of this region surpass anything of the kind in the known world. There are over fifty that throw a column of hot water 30 to 250 feet in the air at intervals of one minute to fourteen days. The Grand Canyon of the Yellowstone, 20 miles long, with an average depth of 1,200 feet, is acknowledged by travelers to be the most brilliantly colored landscape in existence. The Mammoth Hot Springs are the only colored terrace-building hot springs known that have such beauty and magnitude. Cliffs of volcanic glass, unsurpassed waterfalls, mountains of petrifactions, charming valleys, hills of brimstone, perpetual snow-clad peaks, interspersed with thousands of natural curiosities, fittingly characterize this as the wonderland of the world. Modern hotels

have been constructed throughout the Park, conveniently located near these objects of interest. Substantial roads and bridges have been built leading to all the chief attractions—steamers have been placed on the lakes, mountain streams have been stocked with rare species of the finny tribe, military posts have been established, railroads have been built to the Park boundaries both from the north and west—all for the protection, pleasure, comfort and enjoyment of the people.

The Park is under the supervision of the Secretary of the Interior; and the Commanding Officer of Fort Yellowstone is Superintendent. The cavalry preserve order, patrol the roads, and guard the objects of interest from vandalism. Scouts protect the game from poachers; they roam over the entire tract summer and winter in the performance of their duties.

How to Reach the Park.—Two railroads have built branch lines to its borders: the Northern Pacific to the northern boundary at Gardiner, Mont.; and the Oregon Short Line to Yellowstone, Mont., at the western boundary. Both operate daily trains during the tourist season—June, July, August and September.

It may also be reached by wagon road from Cody, Wyo., to the east on the Burlington road; and from Jackson's Hole south of the Park.

How to Make the Park Trip.—Automobiles, trolley-cars and railroads are not allowed within the Park borders. Transportation in the Park is by four and six-horse Concord coaches, two and four-horse moun-

tain wagons, two-horse surreys and saddle and pack outfits.

Congressional appropriations defray the cost of the splendid roads which are built, repaired and sprinkled by the U. S. Engineer Road Department.

The seven hotels in the Park which are located at the various points of interest are under the management of the Yellowstone Park Hotel Company whose lease from the government permits their construction and maintenance. They compare most favorably with hotels at other resorts in architecture, furnishings and table service; and are steam-heated, electric-lighted, and have telegraphic connection with the outside world during the tourist season.

Three companies carry passengers through the park in connection with the hotels. The Yellowstone-Western Stage Company operates from the Western entrance at Yellowstone, Mont.; the Yellowstone Park Transportation Co., from the Northern entrance at Gardiner, Mont.; and the Holm Transportation Co., from the Eastern Entrance at Cody, Wyo.

The Wylie Permanent Camping Co., and Shaw & Powell have established permanent camps at various points along the regular route, furnishing transportation and camping accommodations. Several other licensed camping outfits operate from the various entrances through the park.

All rates and charges in the Park are regulated and require the approval of the Department of the Interior.

ENTRANCES.

Tourists making the park trip from the WESTERN ENTRANCE at Yellowstone, Montana, commence on page 40 for detailed account of Yellowstone Park stage tour.

Tourists entering at the EASTERN ENTRANCE at Cody, Wyoming, (see page 90), will find the entire park tour described in detail herein.

Tourists making the park trip from the NORTHERN ENTRANCE at Gardiner, Montana commence on opposite page for detailed account of Yellowstone Park stage tour.

TOUR OF THE PARK.

ALL tourists in making the park trip cover the *same route* irrespective of the gate entered, and travel over the roads in the same direction.

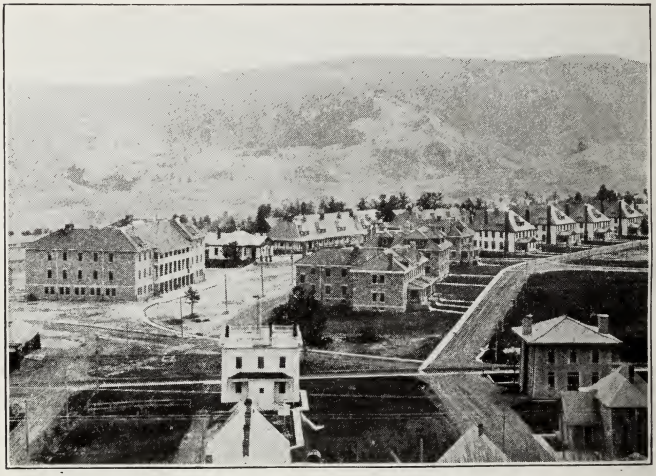
Northern Entrance Arch.—In 1903 the government built an imposing stone arch at Gardiner, dedicated by President Roosevelt, which bears the following inscriptions: "Yellowstone National Park," "Created by Act of Congress March 1, 1872," "For the Benefit and Enjoyment of the People." The log depot of the Northern Pacific Railway in Gardiner, the terminus of the park branch, is in keeping with its mountain surroundings.

A STAGE COACH PARTY.

From Gardiner to Mammoth Hot Springs (5 miles) the road leads through Gardiner Canyon past **Eagle Nest Rock,** a very picturesque bit of scenery, and the **Boiling River.** On this drive an ascent of nearly a thousand feet is made.

Fort Yellowstone, at Mammoth Hot Springs, is the headquarters of the military in the reserve. It recently has been greatly enlarged by the addition of a number of large stone quarters and stables made out of lava rock quarried in the vicinity. Small posts are maintained at various places in the park for the cavalrymen who patrol the roads, and police the park in general.

Mammoth Hotel (Alt. 6,275 feet) is on the same plateau, near Fort Yellowstone, with the U. S. Com-



FORT YELLOWSTONE.

missioner's building, the U. S. Engineer Office and the Weather Bureau.

Mammoth Hot Springs (Alt. 6,275 to 6,575 feet).—The hot springs and terraces occupy several acres to the south of the plateau on the slope of Terrace Mountain. To visit all the prominent springs and formations requires fully two hours; from the road to Golden Gate, however, an excellent view of Jupiter Terrace, the largest of the group, is obtained.

To thoroughly inspect these wonderful springs one must do considerable walking. The "Formation Party" starts from Mammoth Hotel early in the afternoon for a two-hour stroll among these wonders, accompanied by a competent guide.

One characteristic of this great lime deposit (travertine) is the absence of color where dry. The beautiful colorings which have made the terraces famous occur only where the water flows; when the overflow from any spring changes its course the algae, which produce the color, disappear from the abandoned runway and soon the new course is brilliantly colored.

Hymen Terrace, one of the most beautifully colored spots in the Park, is located near the hotel not far to the right of Liberty Cap. This new addition to the number of distinct terraces at Mammoth, while not so large as Jupiter, is easily the gem of the collection because of its exquisite coloring. The veil of steam softens and blends the vivid colorings, while innumerable water-glazed knobs reflect the sunlight like a thousand mirrors. Hymen Terrace is growing fast;

in fact, it is gravely feared that the openings may become choked from the abundance of depositing lime. If this should happen, it would be a matter of but a few days until the coloring would have disappeared, leaving the travertine rock bare and exposed to the destructive forces of the elements.

McCartney's Cabin in the gulch near Hymen Terrace is of interest historically. In 1877 it was the scene of encounters with the Nez Percé Indians, and was the first building in the park.

Liberty Cap, an extinct hot spring cone, standing at the foot of Terrace Mountain, near the road, is fifty-two feet high and twenty feet in diameter at its base. It is formed of over-lapping layers of deposit, evidently having been built up by the overflow of water through the orifice in the top.

Devil's Thumb, a cone of similar structure, but smaller, is located some 200 feet west of Liberty Cap, partially imbedded in the hillside. The path leading to the Formation past the Devil's Thumb is generally taken when returning from the Formation, the one for the ascent branching off the main road a short distance south of Liberty Cap.

Minerva Terrace is a mass of deposit forty feet in height, covering an area of nearly three-fourths of an acre, with a hot spring on the summit some twenty feet in diameter, the temperature of which, at the edge, is 154 degrees Fahrenheit. The constant changing of the overflow and the intermittent character of the spring, make it impossible to predict a season in ad-

HOT SPRING TERRACES.

vance, which will be the active side of the terrace or whether it will be active at all.

Cleopatra Terrace, a short distance above Hymen Terrace, is a good example of the growing deposit. The predominating color here is dark orange.

Jupiter Terrace, the largest of the entire group, extends some 2,000 feet along the edge of the high mound of brilliantly colored deposit south of Minerva Terrace. A climb of about 100 feet up quite a steep trail, is necessary to reach the summit. The two large springs of boiling water fully 100 feet in diameter, supply the main terrace, seen from the driveway, as well as the beautiful **Pulpit Terrace** beneath, on the eastern slope. Articles of iron, glass or any

hard substance placed where the water can run over them, are soon coated with a crystal-white deposit of calcium carbonate.

Jupiter Terrace presents the most delicate coloring from the lightest cream to deep shades of yellow; orange predominating.

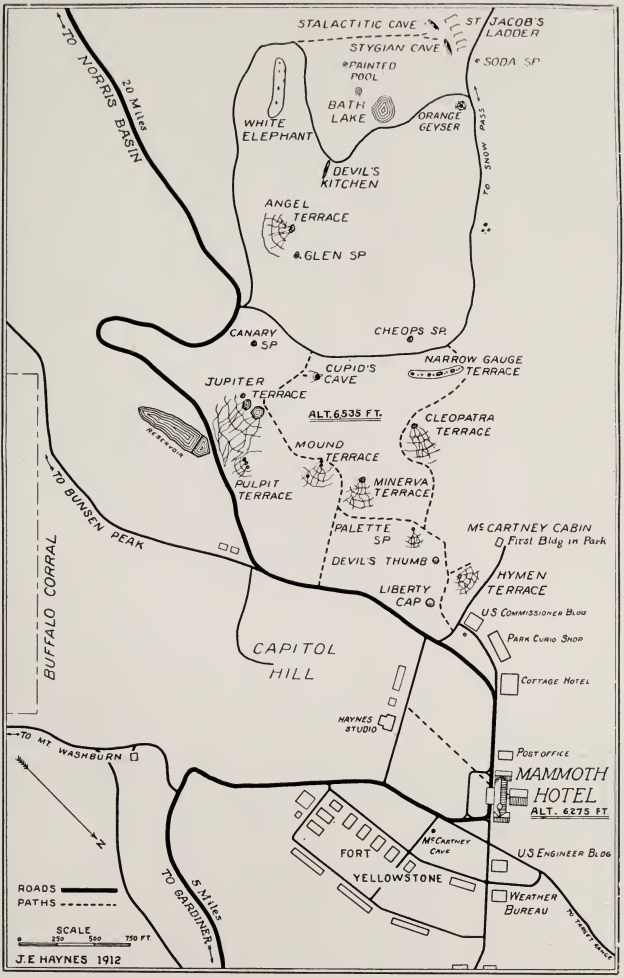
Cupid's Cave, situated a few rods west of the great pool on Jupiter Terrace, formerly had a large enough opening so one could enter it; but a mass of stalactite formation exquisitely colored, has now almost completely filled it.

Narrow Gauge Terrace, a fissure ridge 300 feet long, is filled when active with miniature geysers and springs which deposit the most brilliant coloring.

Orange Geyser, on the terrace above Narrow Gauge, is greatly admired by all visitors. It consists of an oblong mound of deposit some twenty feet high and about thirty feet in diameter. The active little geyser on its summit and the brilliant coloring are its chief attractions.

Bath Lake is a few hundred feet south of Orange Geyser, separated by a timber-covered ridge of ancient deposit that nearly surrounds the lake. There is no visible outlet to Bath Lake; the uniform temperature of the water at all seasons of the year is one of the mysteries of this region.

Devil's Kitchen, the crater of an extinct hot spring, can be entered with safety through a small opening some six or eight feet in diameter by a staircase. The peculiar damp and heated atmosphere of the interior produces a queer sensation and the desire to seek


TO NORRIS BASIN
20 Miles
STALACTITIC CAVE
ST. JACOB'S LADDER
STYGIAN CAVE
SODA SP.
PAINTED POOL
BATH LAKE
WHITE ELEPHANT
ORANGE GEYSER
TO SNOW PASS
DEVIL'S KITCHEN
ANGEL TERRACE
GLEN SP.
CANARY SP.
CHEOPS SP.
CUPID'S CAVE
NARROW GAUGE TERRACE
JUPITER TERRACE
ALT. 6,535 FT.
CLEOPATRA TERRACE
BEASTON
MOUND TERRACE
PULPIT TERRACE
MINERVA TERRACE
TO BUNSEN PEAK
PALETTE SP.
DEVIL'S THUMB
Mc CARTNEY CABIN
1st Bldg in Park
HYMEN TERRACE
LIBERTY CAP
U.S. COMMISSIONER BLDG
PARK CURIO SHOP
BUFFALO CORRAL
CAPITOL HILL
COTTAGE HOTEL
HAYNES STUDIO
TO MT WASHBURN
POST OFFICE
MAMMOTH HOTEL
ALT. 6275 FT.
FORT YELLOWSTONE
Mc CARTNEY CAVE
U.S. ENGINEER BLDG
WEATHER BUREAU
TO TANTY TERRACE
5 MILES TO GARDINER
ROADS
PATHS
SCALE
250 500 750 FT.
J.E HAYNES 1912

fresh air at once comes over the visitor. When the Devil's Kitchen was first explored (in 1881) numerous bones of wild animals were found in the cave and it was alive with the flying bat.

Stygian Cave.—The poisonous gases from vents in the floor of the Stygian Cave have claimed the lives of many birds and small animals. It is situated a few rods from the Devil's Kitchen and is shaped like a large open fireplace without a chimney; in this chamber the gases collect which suffocate the birds and animals seeking shelter there.

Angel Terrace.—One of the most beautifully colored terraces at Mammoth, may be seen through the trees from the Golden Gate Road. It is about three hundred yards south from Orange Geyser.

MAMMOTH HOTEL AND FORT YELLOWSTONE.

GEOLOGICAL.—The Yellowstone Park is young geologically but so old that the slow erosive power of running water has carved furrows a thousand feet, or more deep, into its solid rock.

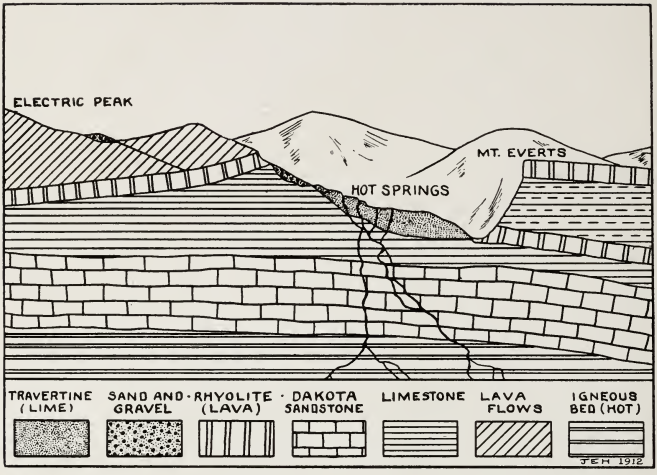
The mountains are igneous; and all through the Park there are evidences of violent volcanic eruptions as shown by extensive lava beds. Amygdaloid cliffs and great gnarled masses are common; there are obsidian cliffs, great geometrical blocks, petrifactions and geodes, besides the print of leaves in rock where forests have fallen prey to the flowing molten lava.

Some sedimentary deposits are also found here near the northern boundary, in the form of limestone beds, clays and shales. There were glacial invasions from the north too, which have left hills of sand and gravel, and isolated bowlders at various points.

But the most wonderful deposit in the region is this **Formation at Mammoth Hot Springs.**

It is composed of pure calcium carbonate, dissolved from the limestone beds below and brought to the surface by the hot springs. It is many acres in extent —of unknown depth—and is the result of periods of successive deposition and decay extending over a great length of time. The deposit is building where the water flows and crumbling to a chalky powder where dry.

The water is heated by great masses of rock which have not yet cooled below the zone of percolating water. Such conditions are also seen today in New Zealand and Iceland.



GEOLOGIC PROFILE, MAMMOTH HOT SPRINGS.

Four factors are held responsible for the practically complete precipitation of the lime carried by the water to the surface; namely, (1) the "eating" process of the algous growth which thrives in the hot water, (2) the giving off of carbonic acid to the air, (3) the cooling of the water and (4) evaporation.

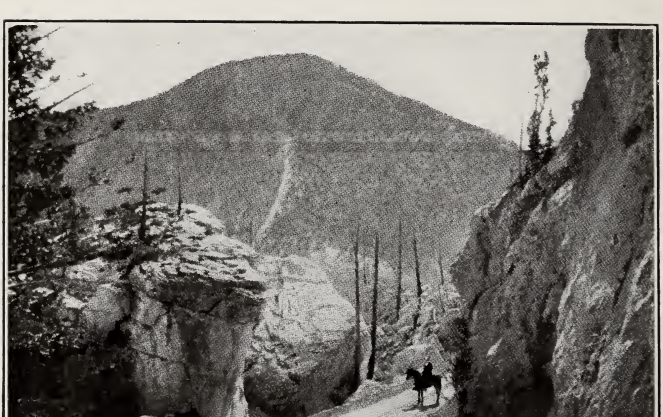
The chief attraction of this great deposit is its beautiful coloring; harmonizing shades of yellow and brown with occasional streaks of dark green and red characterize the formation where the hottest water flows. The predominating rust color is found in the tepid water farther from the mouths of the hot springs. It is noticeable that the abandoned portions of the deposit are a glaring chalk-white, also that the color-

ings are found only on the active terraces; furthermore, the color disappears in winter when the water is cooled to the mouths of the boiling springs. Mineral coloring is more stable than that; such coloring remains on rock wet or dry, and in a great range of temperatures. It is the algae that color these terraces more beautifully than could natural mineral coloring or the hand of man; the algous growth—a low form of plant life—cleaves closely to the rock in a velvet-like covering which requires hot or tepid water in which to live.

Nor are the pool colorings due to minerals; the United States Geological Survey states authoritatively that these colors are due to the reflection and refraction of the light rays, influenced by the nature and color of the pool linings and their surroundings.

From Mammoth Hot Springs to Norris Basin (20 miles) many interesting places are passed, the great limestone Hoodoos, Golden Gate, Apollinaris Spring, Obsidian Cliff and Roaring Mountain; a very pleasant and diversified drive.

Silver Gate and Hoodoos.—The driveway from Mammoth to Golden Gate ascends the mountain by such easy grades, and graceful curves that one does not realize that a thousand feet elevation is gained in less than three miles. This road passes through the **"Hoodoos,"** a wild, strange region heretofore inaccessible. Many theories are advanced as to the origin of the "Hoodoos." The most plausible is that the immense quantity of deposit or formation seen lower



SILVER GATE AND BUNSEN PEAK.

down the valley, even as far as Gardiner River, two miles distant, was carried there in solution by the hot waters of Mammoth Springs, thus leaving honeycombed caves beneath; the present Hoodoo region was formed by the surface caving in, filling the cavern below with huge masses of fractured rock. This condition is seen over a total area of about one square mile. In the midst of the "Hoodoos" the road makes an abrupt turn, passing between great blocks of limestone that rise abruptly fully seventy-five feet, to which is applied the very appropriate name, **"Silver Gate."**

Golden Gate.—Four miles from Mammoth Springs is one of the most picturesque drives in the Park;

a rugged pass between the base of the lofty elevations of Bunsen Peak and the southern extremity of Terrace Mountain (through which flows the west branch of Gardiner River). The sides of these rocky walls, which rise 200 to 300 feet above the roadway, are covered with a yellow moss, suggesting the appropriate name the pass now bears. The pillar at the east entrance, some twelve feet high, was originally a part of the canyon wall. The construction of this roadway and viaduct, scarce a mile in length, was the most expensive and difficult piece of road building yet encountered by the government engineers.

Rustic Falls, occupying a conspicuous position at the west end of Golden Gate Canyon, adds a charm

GOLDEN GATE CANYON AND VIADUCT.

to this beautiful spot; in the early part of the season the falls is especially fine. The stream, Glen Creek, is fed by mountain snows and springs, along the base of the hills, a mile or so away; at the falls it leaps some sixty feet over a series of shallow basins worn into the dark, moss-covered ledge, and disappears underneath an accumulation of rock deposited in the canyon when the roadway was constructed.

Swan Lake Basin.—A pleasant surprise awaits the visitor immediately beyond Golden Gate where the road comes suddenly into a broad mountain prairie hemmed in by snow-clad peaks. The magnificent Gallatin range rising abruptly from the foothills, composed of Bell Peak, Quadrant Mountain, and Mount Holmes (Alt. 10,578 feet), are conspicuous in the foreground. About eight miles to the north is **Electric Peak** (Alt. 11,155 feet), *the highest mountain in the Park*; it is said that the large amount of magnetic ore in this mountain not only attracts the lightning during storms, but renders working with a surveyor's transit on the mountain impossible.

The drive continues south through Swan Lake flat, past Swan Lake and a **Wylie Camp,** and crosses the two streams which make the Middle Gardiner River, namely, Indian and Willow Creeks.

Apollinaris Spring is on the east side of the road near the ten-mile post—a delicious spring of natural Apollinaris water, as refreshing as the genuine article of commerce.

Obsidian Cliff.—This bold escarpment of volcanic glass is twelve miles south of Mammoth Hot Springs.

The roadway passes along its base for 1,000 feet between it and Beaver Lake. The vertical columns of pentagonal-shaped blocks of obsidian, rising some 250 feet above the road, present a glistening, mirror-like effect when illumined by the sun's rays. The greater part of this mineral glass is jet black and quite opaque, with traces of similar formation variegated with streaks of red and yellow. The construction of the roadway along its base was accomplished in a novel manner and with considerable difficulty; blasting powder being ineffectual, great fires were built around the huge blocks of glass, which, when heated, were suddenly cooled by dashing water upon them, thus shattering the blocks into small fragments. This process made

OBSIDIAN CLIFF—BEAVER LAKE.

possible the construction of this really wonderful roadway, probably the only piece of glass road in the world. There being no other exposed ridge of obsidian in the Rocky Mountains, and this material being more desirable than flint for the manufacture of arrow heads, it was once a famous resort for all tribes of Indians, who congregated here in great numbers. Obsidian Cliff was "neutral ground" to all the Rocky Mountain Indians, and undoubtedly as sacred to the various hostile tribes as the far-famed Pipestone country of Minnesota. Chips of obsidian and specimens of partly finished arrow heads are found throughout the Park, generally at places occupied by the Indians as summer camps.

Beaver Lake.—The roadway continues along the east side of Beaver Lake, which is about one mile long and a quarter of a mile wide. Several beaver dams are constructed across the lake, forming a series of artificial obstructions, each having a fall of from two to four feet. A beaver house, still inhabited, is located near the west shore of the lake. Since the rigid enforcement of the Park regulations regarding the killing of game, Beaver Lake is becoming alive with numerous water fowl, the passing carriages not seeming to alarm them. The reflection of the pine-clad hills among the dense growth of pond lilies which line its shores, adds to the beauties of this lake.

The drive from Obsidian Cliff to Norris Basin is over a ridge which separates the headwaters of the Yellowstone and Missouri Rivers, the ascent of which is so gentle it is impossible to know when the "divide" is passed.

About 4½ miles from Norris, **Roaring Mountain** is seen steaming from countless openings in its furrowed sides. Its ashen color and the muffled sound of escaping steam, less audible now than in the past, make this sight one to be long remembered. Near the roadside at the base of the mountain are greenish, milky pools fed by rivulets of sulphur water from the springs.

Twin Lakes, about four miles from Norris, are remarkable on account of their beautiful colors. Although situated adjacent to each other they are of decidedly different hues.

The next object of interest is the **Frying Pan,** a basin fifteen feet across, completely filled with little hot springs, or steam vents, which are constantly in a state of violent agitation; the whole effect accounting for its appropriate name.

Norris Geyser Basin.—This remarkable geyser region was formerly called "Gibbon Geyser Basin," but on account of the extensive work of exploration done by Colonel P. W. Norris while he was Superintendent of the Park (1877 to 1882), it has since been known as Norris Geyser Basin.

The chief attractions here are the great steam vents, large boiling pools and several geysers, notably the Constant, Whirligig, Mud, Valentine, New Crater, Minute Man, Echinus, Monarch, and Fearless.

Norris Lunch Station (Alt. 7,410 feet) is well situated on a prominence at the north end of the basin overlooking the principal portion. The hotel guide makes two trips over the formation daily. Tourists

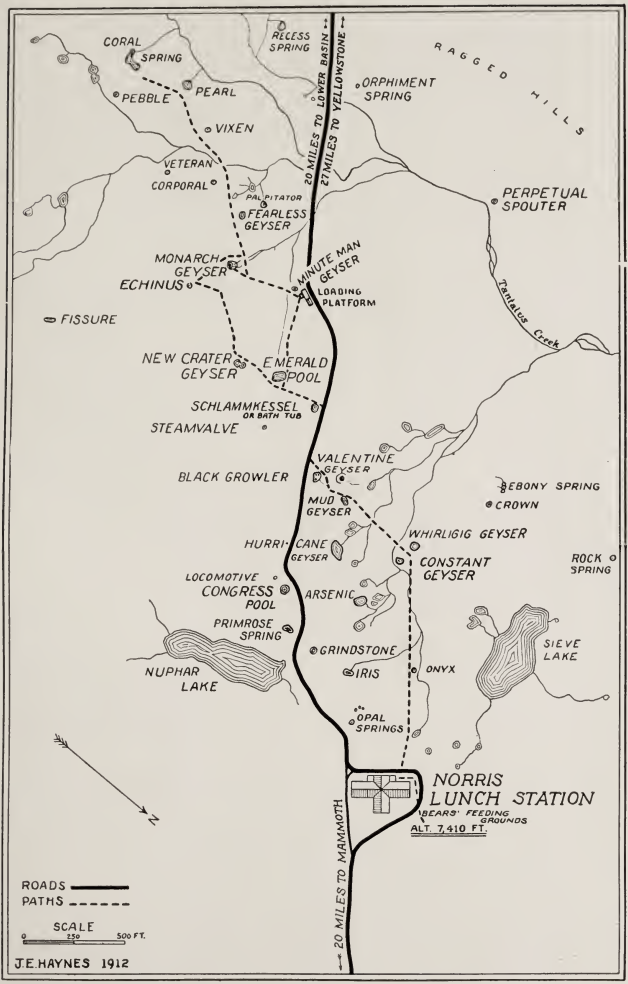
making the tour by the Y-W Stage Company's coaches reach Norris from the Canyon about 10:30 in the morning and are conducted over the formation *before* lunch; those travelling by the Y. P. T. Company's coaches arrive from Mammoth later and make the formation trip *after* lunch.

GEYSER TABLE.
NORRIS GEYSER BASIN.

Corrected by observations made during the past season.

Geysers at Norris Basin	Maximum Height	Duration	Intervals of Eruption
Constant	20 ft.	10 sec.	30—60 sec.
Echinus	30 ft.	irregular	45 min.
Fearless	25 ft.	15 min.	3 hrs.
Minute Man	15 ft.	1 to 3 min.	1 to 3 min.
Monarch	50 ft.	6 min.	25 to 60 min.
Mud	20 to 60 ft	1 to 2 min.	New; irregular.
New Crater	20 ft.	1 min.	3 min.
Valentine	100 ft.	40 min.	22 to 30 hrs.
Whirligig	10 to 15 ft	10 sec.	irregular.

Congress Pool.—The first sight that attracts the visitor is this immense boiling spring, in close proximity to the road, on the left as one enters the basin. It is the largest spring of its class found in the Geyser Basins and is rapidly approaching a geyser. Its pale blue water is in a state of violent agitation, with occasional demonstrations that force the water fifteen or twenty feet above the rim of the crater; the diameter of which is fully forty feet. For several years there existed near the Congress the "Steam Vent," one of



NORRIS GEYSER BASIN.

the features of this basin. It consisted of an opening in the rocks from which a great quantity of steam was constantly escaping; the roaring of which could be heard for miles. During the winter of 1893 the "Steam Vent" ceased and the Congress appeared. The first eruptions were of great force and completely blocked the road with masses of earth and formation.

The usual trip over the formation starts from the hotel. To the left of the board walk are **Opal Springs,** the **Iris Pool** and the **Grindstone,** all hot, boiling pools. Near the walk on the right is the **Onyx,** a small basin, and where the walk turns are two geysers, the Constant and Whirligig.

The **Constant Geyser** has a basin twenty-four feet across, out of which displays take place with marked regularity every thirty seconds; a very pretty geyser. A few feet to the south is a similar basin, the crater of the **Whirligig,** which plays quite like the Constant but not so frequently.

The **Mud Geyser** is passed on the way to the Valentine and Black Growler. Some seasons this geyser erupts with great violence, displays frequently occurring about sixty feet high.

The **Valentine Geyser** plays usually every seven and one-half hours, its displays being unequaled by any other geyser in Norris Basin, height, 100 feet, duration, 40 minutes.

Black Growler Steam Vent attracts much attention; it roars constantly and emits great volumes of steam. The deposit around the crater is quite black in places, which fact accounts for its name. The vent a few

yards north of the Black Growler is known as the **Hurricane**; it is quite similar but not so violent as the former.

Situated east of the roadway is the **Schlammkessel,** frequently referred to as the **Bath Tub.** It has a well-formed basin, and while it does not erupt, it is in constant agitation.

CONSTANT GEYSER—NORRIS BASIN.

Emerald Pool is seen next; a large quiescent lake of boiling hot water with a greenish tinge, situated south of the Bath Tub.

New Crater Geyser.—This geyser is about 500 feet southeast of Emerald Pool, surrounded by huge blocks of dark yellow rock. It came into prominence during the fall of 1891, when quite a commotion, not unlike

NEW CRATER GEYSER—NORRIS BASIN.

an earthquake, was observed. When it burst forth a great volume of water was forced out, flooding the ravine leading to the valley below. Since then it has settled down to ordinary eruptions, about every three minutes. The rock-covered crater prevents the discharge attaining any great height.

Monarch Geyser, the king of geysers in Norris Basin, is situated at the base of the hill, nearly surrounded by a bluff of brilliantly colored rocks, upon the level of the plateau about 1,000 feet east of the roadway. The crater consists of two oblong openings, the larger of which is twenty feet long and three feet wide. Eruptions of the Monarch occur without warn-

ing and consist of a series of explosions, frequently more than a dozen, in which columns of water are thrown 100 feet high. The intervals of eruptions are ordinarily about six hours.

Fearless Geyser, situated 500 feet south of the Minute Man Geyser, throws jets of water in every direction during eruptions. Norris is the newest geyser basin in the Park and probably the one most rapidly changing. One cannot be sure a season in advance whether any one of its geysers will be doubly active the coming summer or die out.

The **Minute Man Geyser** is interesting on account of its regularity, and the fact that most of the water thrown out flows back into the crater after the eruption. Its crater is small and appears to have been originally only a fissure in the rock.

A loading platform has been built nearby on the road; it is customary for those who have taken the walk from the hotel to this point, to get aboard their coaches here for the ride to the Fountain Hotel at the Lower Geyser Basin.

The drive to the Fountain Hotel (20 miles) is through Gibbon Canyon past Gibbon Falls and Beryl Spring to the junction of the Gibbon and Firehole rivers, where the road joins that from Yellowstone—the western entrance to Yellowstone Park.

Three miles from Norris Basin the road enters **Elk Park,** a beautiful valley surrounded by heavily-timbered hills. Farther on are the **Gibbon Meadows** past **Chocolate Springs,** two unique hot springs, which have built cones of a decided chocolate color;

one is by the roadside near at hand, and the other on the opposite side of the river.

At the northern entrance to Gibbon Canyon on the opposite side of the river from the road is Mount Schurz, on the summit of which is the **Monument Geyser Basin** a thousand feet above. Unless one is inclined to scientific observation, a climb up the steep trail to this basin is hardly justified. A dozen or so crumbling geyser cones, some steaming and rumbling, others apparently extinct, constitute its total attractiveness.

Gibbon Canyon.—The roadway enters Gibbon Canyon on the east side of the river, which it follows, as nearly as practicable, for three or four miles, shadowed by precipitous cliffs two thousand feet high in places.

Along this drive many hot spring and steam vents are seen. **Beryl Spring** is rather more than usually attractive and deserves particular notice, being the largest boiling spring in the canyon. It is fifteen feet across, and is located close by the roadside about a mile from the entrance to the canyon. The violent boiling of its surface, coupled with the hiss of escaping steam, while lending something of a nervous apprehension to the feelings of the traveler, strangely enough has no terrors for the stage-horse even though the road is almost constantly enveloped in steam.

Gibbon Falls, whose waters tumbling in a foamy torrent down a series of steep cascades on one side of a bold rocky ledge, and on the other, streaming in a thin shining ribbon of silvery spray from a height of some-

GIBBON FALLS—80 FEET.

thing over eighty feet, fittingly concludes the attractions of Gibbon Canyon.

Leaving the Falls the road descends to the Gibbon Canyon junction, the right hand road follows down the river to the Western Entrance and the left hand road to the Lower Basin. A Wylie Lunch station is located at this point.

For a distance of three or four miles from the junction, the route is over a succession of pine-clad terraces to the valley of the Firehole River, which unites with the Gibbon River to form the Madison, one of the principal sources of the Missouri River. This driveway is greatly admired, presenting as it does an ideal park-like appearance, all down timber and rubbish having been cleared away by the Road Department.

(See page 44 for continuation of trip from Northern Entrance.)

TOUR OF THE PARK
FROM THE WESTERN ENTRANCE

Yellowstone, Montana.—On November 12, 1907, the Oregon Short Line R. R. completed its branch line to Yellowstone, twenty miles from the lower Geyser Basin, where it has constructed a unique stone depot having every convenience for the traveler; private dressing rooms, check rooms where extra baggage may be stored while making the park trip, and a covered porte-cochere and loading platform. Coats, hats and linen dusters are for rent for the park trip. The dining car department of this railroad operates an eating-house nearby where exceptionally good meals are served.

YELLOWSTONE STATION OREGON SHORT LINE R. R.

Tourists making the hotel trip through the park are transported in elegant four-horse Concord coaches of the Yellowstone-Western Stage Company to all points in the reserve.

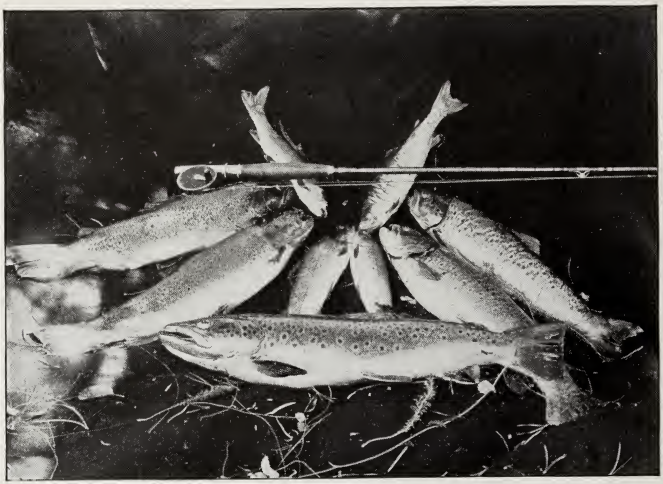
Christmas Tree Park, a beautiful plateau, extends for ten miles along the western boundary and is about three miles wide where the road crosses it. The government engineers constructed an ideal roadway through this forest-covered tract by cutting a hallway through the pines; the volcanic ash and obsidian proving to be excellent road material.

The drive from Yellowstone to the Fountain Hotel is up the Madison River past Mt. Burley, National Park Mt., and the Cascades of the Firehole. This is the route which was the pioneer entrance to Yellow-

CHRISTMAS TREE PARK AT WESTERN ENTRANCE.

stone Park; having been used by the early explorer James Bridger, discoverer of the Great Salt Lake, Colter of the Lewis and Clark expedition, and Dr. F. V. Hayden of the U. S. Geological Survey.

After leaving Christmas Tree Park the beautiful Madison River comes into view; a Wylie Camp is



LOCH LEVEN AND RAINBOW TROUT OF THE MADISON.

situated a short distance from this point and farther on, the Riverside Military Station headquarters for a detachment of United States Cavalry.

The Rainbow and Loch Leven Trout of the Madison River have made this section of the park famous. It is not uncommon for an expert angler to land a six-pound rainbow trout in this vicinity, a sport to be fully appreciated only by experience. The United

States Fish Commission's work in the Yellowstone reserve as a whole is to be commended, many ideal streams having been destitute of fish life before being stocked.

Mt. Burley rises from the water's edge several hundred feet high on the south side of the Madison

NATIONAL PARK MOUNTAIN

Canyon, a rugged escarpment of lava rock. The scenery in Madison Canyon is acknowledged by all to be equalled only by the Grand Canyon of the Yellowstone.

National Park Mountain, situated at the junction of the Gibbon and Firehole Rivers, marks the point where on September 19, 1870, the Washburn-Langford Party camped after having completed the exhaustive

exploration of the park. While encamped at this place one member of the party suggested that the Yellowstone region, just explored, should be made a National Park, and it was largely through their efforts that Congress in 1872 passed the act of dedication.

One of the most charming drives in the reservation is from National Park Mountain to the **Cascades of the Firehole.** Here a short halt is usually made so these beautiful cascades may be viewed from different points. Below the upper cascades the river is confined in a narrow gorge until it reaches the main falls. The Firehole River owes a large part of its flow to the immense drainage from the geyser basins, and in many places along its course the water is appreciably warm; in spite of this fact, however, trout abound in its pools all the way from Madison Lake, its source, to these cascades.

After passing the second Military Station about two miles from the Lower Geyser Basin, Nez Percé Creek, made famous by the Nez Percé Indians headed by Chief Joseph on their memorable raid through the park in 1877, is passed. These revengeful Indians were pursued and driven from the reserve by Gen. O. O. Howard and his command.

Lower Geyser Basin.—This is a comparatively wide valley, extending southward from the junction of the east fork of Firehole River with the main stream, and embracing an area of thirty to forty square miles. Over this valley or basin are scattered hot springs in groups, of which Dr. Hayden, in his official survey of the Park Region, has catalogued 693, exclusive of 17

CHIEF JOSEPH OF THE NEZ PERCE INDIANS.

geysers. The general elevation is about 7,250 ft., while the surrounding slopes, which are, for the most part, heavily timbered, are 400 to 800 feet higher.

The Fountain Hotel (Alt. 7,180 feet) is pleasantly situated on the east side of the valley, commanding an extended view of the surroundings. Its appointments are first-class throughout, electric light, steam heat, and the only hotel in the Park having natural hot water baths. It is the first hotel reached by visitors entering the Park from the west. The adjacent streams are stocked with "Loch Leven" and "Eastern Brook" trout, and with the many natural curiosities in this vicinity one can profitably spend several days here.

The chief attractions at the Lower Geyser Basin are the Fountain and Great Fountain Geysers, the

Mammoth Paint Pots, Clepsydra Spring and Firehole Lake.

Fountain Geyser occupies an eminence, south of the hotel about 2,000 feet.

The formation or deposit from the waters of this geyser covers an area of several acres, the crater of which is thirty feet in diameter, surrounded by a rim-like edge, to the margin of which the water rises, except

GEYSER TABLE.

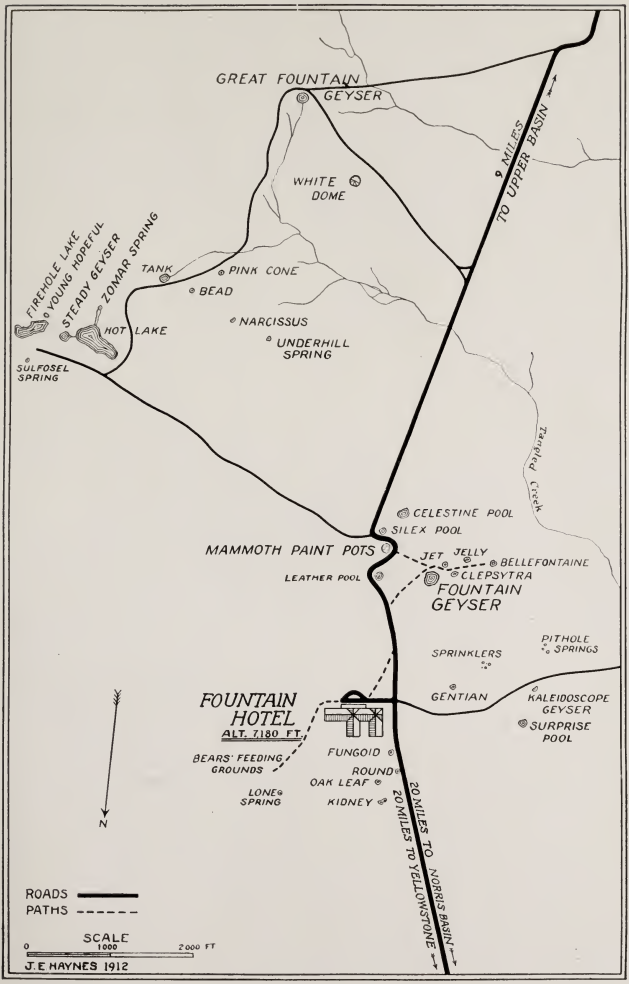
LOWER AND MIDWAY BASINS.

Corrected by observations made during the past season.

Geysers at Lower Basin	Maximum Height	Duration	Intervals of Eruption
Fountain	75 ft.	20 min.	3 to 6 hours
Great Fountain	100 ft.	30 min.	8 to 12 hours
At Midway Basin			
Excelsior	300 ft.	Variable	1 to 4 hrs. Ceased to play in 1888.

upon the south side, where a mound of beaded geyserite has been built up to a height of three or four feet. On the north side of the geyser proper is a considerably larger pool which receives the overflow from the crater. The cushion-like masses of geyserite, which are plainly visible through the transparent blue water, in both the crater and the pool, are very much admired.

Indications of an eruption are as follows: When both the pool and crater are full of water to the rim it



LOWER GEYSER BASIN.

is probable that an eruption will soon take place, as immediately after action the water falls from twelve to eighteen inches below the crater rim, from which point it rises gradually until the climax is reached.

In July, 1899, the Fountain Geyser ceased operations and remained inactive until October, when it resumed its usual displays. In the meantime an immense geyser broke out in the large pool north of the Fountain. Its eruptions were of great force, quite irregular, but gave exhibitions equal to Old Faithful, only continuing, at times, fully an hour.

In July, 1909, ten years later, it abandoned its crater for the one adjoining and threw out jagged masses of geyserite more than 200 feet. The water was muddy and full of rock fragments for many hours; and as late as September, large pieces of rock were thrown out during the more violent eruptions.

For two days preceding the breaking out of this geyser in its new place, much disturbance was noted in the vicinity; loud rumblings were heard and the thumping of the entombed steam and water, gaining in violence each hour, alarmed even those most used to the strange phenomena of the geyser region. During the remainder of the season of 1909 the Fountain Geyser played much higher than before, like a stream through a smaller nozzle, but its eruptions were less regular.

Clepsydra Spring, some fifty feet west from the Fountain, has recently developed into an active geyser of no small eruptive power, its frequent displays being

really quite violent for so small a "spouter" and very pleasing withal.

Mammoth Paint Pots.—Some few hundred feet east of the Fountain, near the road, from which they are separated by a fringe of trees, are situated these wonderful paint pots. This remarkable mud caldron has a basin which measures 40x60 feet with a mud rim on three sides, which is from four to five feet in height. In this basin is a mass of fine, whitish substance which is in a state of constant agitation. It resembles some vast boiling pot of paint or bed of mortar with numerous points of ebullition; and the constant boiling has reduced the contents to a thoroughly mixed mass of silicious clay. There is a continuous bubbling up of mud, producing sounds like a hoarsely whispered

MAMMOTH PAINT POTS, LOWER BASIN.

"plop-plop," which rises in hemispherical masses, cones, rings and jets.

Great Fountain Geyser is situated about two miles south of the hotel and about one mile east of the main road; the one to the geyser branches off soon after crossing Fountain Creek. The Great Fountain, as described by Mr. David E. Folsom, who witnessed a display October 1, 1869, faithfully portrays its present exhibitions. "The hole through which the water was discharged was ten feet in diameter, and was situated in the center of a large circular shallow basin into which the water fell. There was a stiff breeze blowing at the time, and by going to the windward side and carefully picking our way over convenient stones we were enabled to reach the edge of the hole. At that moment the escaping steam was causing the water to boil up in a fountain five or six feet high. It stopped in an instant, and commenced settling down—twenty, thirty, forty feet—until we concluded that the bottom had fallen out, but the next instant, without any warning, it came rushing up and shot into the air at least eighty feet, causing us to stampede. It continued to spout at intervals of a few moments for some time, but finally subsided." There are many interesting and curious sights in the vicinity of the Great Fountain that should be visited. The "White Dome," "Surprise," **Firehole Lake,** "Mushroom," and **Buffalo Spring** are the most prominent. The latter was discovered in 1869 by an early exploring party. In describing their trip the writer says: "In one of these springs we saw the whitened skeleton of a mountain buffalo that had

probably fallen in accidentally. No king or saint was ever more magnificently entombed than this monarch of the hills in his sepulchre in the wilderness."

Midway Geyser Basin.—Strictly speaking, this section constitutes the upper portion of the Lower Basin, and is about three miles from Fountain group. Being about midway between the extremes of the Upper and Lower Geyser Basins, this locality is given a distinct designation.

Excelsior Geyser.—"Early explorers in this locality discovered, in 1871," says Dr. Peal, "on the west bank of Firehole River, an immense pit of rather irregular outline, 330 feet in length by 200 feet in width at the widest part. The water is of a deep blue tint, and is intensely agitated all the time, dense clouds of steam

EXCELSIOR GEYSER, MIDWAY BASIN.

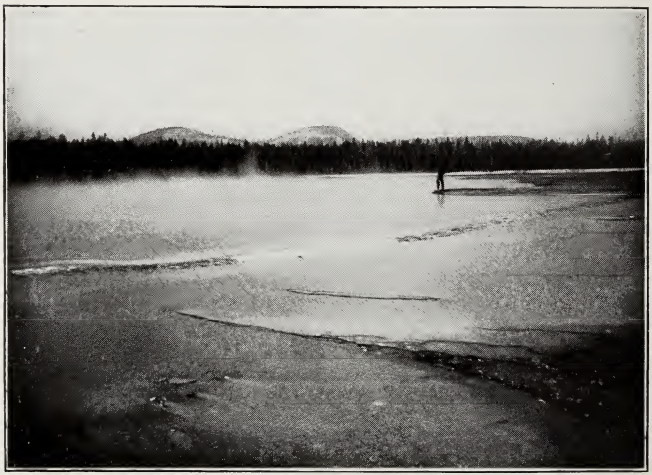
constantly ascending from it. It is only when the breeze wafts this aside that the surface of the water, which is fifteen or twenty feet below the level surrounding, can be seen. The walls on three sides are perpendicular, cliff-like, and in places overhang, having been worn away on the other." With every indication of a powerful geyser with long intervals of eruption it was, however, not known to be a geyser until some ten years later. Visited by thousands annually, this section became known as "Hell's Half Acre," a name it retained until 1881, when discovered by Colonel P. W. Norris to be a geyser of great force, and then named by him "Excelsior." Its eruptions in 1881 began in the fall, after the tourist season had closed; Colonel Norris witnessed upwards of thirty eruptions, varying from 75 to 250 feet in height, at intervals of one to four hours. No further eruptions of this geyser are recorded until early in the spring in 1888, when reports became current that Excelsior was again in action. Eruptions of great force continued during the spring and summer in 1888, which resulted in enlarging the crater fully 100 feet. The intervals of eruption during 1888 were at first about every hour and fifteen minutes, increasing towards the latter part of the season to two hours. The only possible indication of an approaching display was the increase in the volume of overflow, there being a steady filling of the crater after periods of activity. Immediately preceding an eruption a violent upheaval occurred, raising the entire volume of water in the crater nearly fifty feet, then instantly one or two and sometimes three terrific ex-

plosions would occur, followed closely by the shooting upwards of columns of water, and oftentimes masses of the rocky formation, to a height of 200 to 250 feet. Tons of rock have in this way been hurled into Fire-hole River, some pieces fully 500 feet from the crater. At each upheaval sufficient water would escape to raise the river several inches. The inactivity, during 1888, of two of the largest geysers in the Upper Basin was attributed to the wonderful activity of Excelsior, which, at each eruption, ejected as much water as all the geysers combined.

Turquoise Spring, situated about 150 feet north of Excelsior, is a silent pool, about 100 feet in diameter, and remarkable for its beautiful blue transparent water. There is a constant overflow from the spring, through a shallow channel some two feet wide, its sides and bottom being exquisitely colored; when Excelsior was in action the water in this spring sank fully ten feet and did not resume its normal condition for nearly a year. West of the Turquoise Spring, and in itself a marvel, is a small spring of cold water, which, though rather "brackish" to be palatable, is attractive as being the sole cold spring in this region of thermal waters.

Prismatic Lake is probably the very largest and certainly one of the most beautiful springs in the entire Park region. It is situated some 500 feet or so west of Excelsior Geyser, its dimensions being 250x400 feet. Over the central pit, or bowl, of this spring the water is of a deep blue color, changing to green towards the margin, while that in the shallower portions of the lake surrounding the central basin has a yellow tint

gradually fading into orange. Outside its rim there is a brilliant red deposit, which shades into purples, browns, and grays, all seemingly painted upon a ground of grayish white, which forms the mound, built up of layers of silicious deposit, upon which the spring is situated. This coloring is in vivid bands, which are strikingly marked and distinct. The water flowing off in every direction, with constant wave-like pulsations over the artistically scalloped and slightly raised rim of the lake, has formed a succession of terraces, each a few inches in height, down the slopes of the mound, particularly upon its southern face. It is impossible to exaggerate the delicacy and richness of the coloring in and about this wonderful phenomenon of nature. The temperature of the water is about 146 degrees



PRISMATIC LAKE, MIDWAY BASIN.

Fahrenheit, and the constantly rising clouds of steam sometimes render difficult a good view of the lake surface; but viewed from the proper standpoint (generally with the sun to the back), these same volumes of steam are exceedingly attractive, reflecting the colors of the rainbow or prism, whence the name of the spring, though some attribute it to the variegated tints of its waters. The entire drive from Midway to the Upper Basin, some five miles, is among many natural wonders.

Biscuit Basin is on the west side of Firehole River and on the north side of Iron Spring Creek, being about one mile below Riverside Bridge. The footbridge over Firehole River nearby allows one to easily visit this locality. The principal attraction in Biscuit Basin is **Sapphire Pool,** whose highly ornamented margin suggested the basin's rather odd name. Hundreds of small symmetrical, biscuit-like knobs of olive-green formation surround the spring, which is of the variety known as pulsating or breathing springs (geysers in fact). The constant ebb and flow of its waters have produced this peculiar formation, from one to another of which one must pick one's way in order to get a good view of the pool itself. A few feet to the west is

Jewel Geyser, whose eruptions occur with the remarkable frequency of from three to five minutes, throwing jets of water to a height of about forty feet. Scarce 500 feet further west are the **Black Pearl** and **Silver Globe.** The former has a beautiful basin, studded thickly with black pearls, each about one-quarter of an inch in size. A curious feature of this little "spouter" is the fact that its formation surrounds

the roots and stump of a tree, completely incrusting the same with its rich, black ornamentations.

The Silver Globe derives its name from the constant rising to its surface of large, silvery globules or bubbles of gas or steam, which, of course, immediately disappear on reaching the air.

Artemisia Geyser is situated between the road and the river, quite near the former, which is elevated some twenty feet above the spring. Stepping to the edge of the bank, an excellent view of the crater is obtained, the crystal clearness of its waters allowing a distinct view in to its apparently bottomless depths. The spring is sixty feet in diameter and generally very little agitated, merely overflowing. The surrounding formation, quite unlike that of any other spring or geyser, is as hard as flint, and of a peculiar olive-green color. Although for the most part very quiescent, this spring has occasional pulsations in the nature of eruptions, at which times large quantities of water are forced out, fairly flooding the formation between it and the river. These eruptions occur at intervals of twelve to twenty-four hours. The bank of the Firehole, some thirty feet high at this point, is the most highly colored section of the river to be found in the Upper Basin. The best view is obtained from the bridle-path on the opposite side of the river. This trail leads south from the Splendid, crossing the Firehole just above its confluence with Iron Spring Creek, near which it joins the main road.

Morning Glory Spring is passed just before coming to the Riverside Bridge. The symmetrical shape and

funnel-like crater whose walls are delicately colored, account for the appropriate name of this spring. At the surface the diameter is 23 feet and the temperature 100 degrees F., and apparent depth 29 feet.

MORNING GLORY SPRING, UPPER BASIN.

Upper Geyser Basin is triangular in form and embraces an area of about four square miles; it contains twenty-six geysers and upwards of 400 hot springs Iron Spring Creek bounds it on the west; timbered mountain slopes form the hypotenuse of the triangle and a wavy line of dark forest conifers, its southern base. The main Firehole River drains it, centrally; its shelving banks are thickly pitted with steaming hot

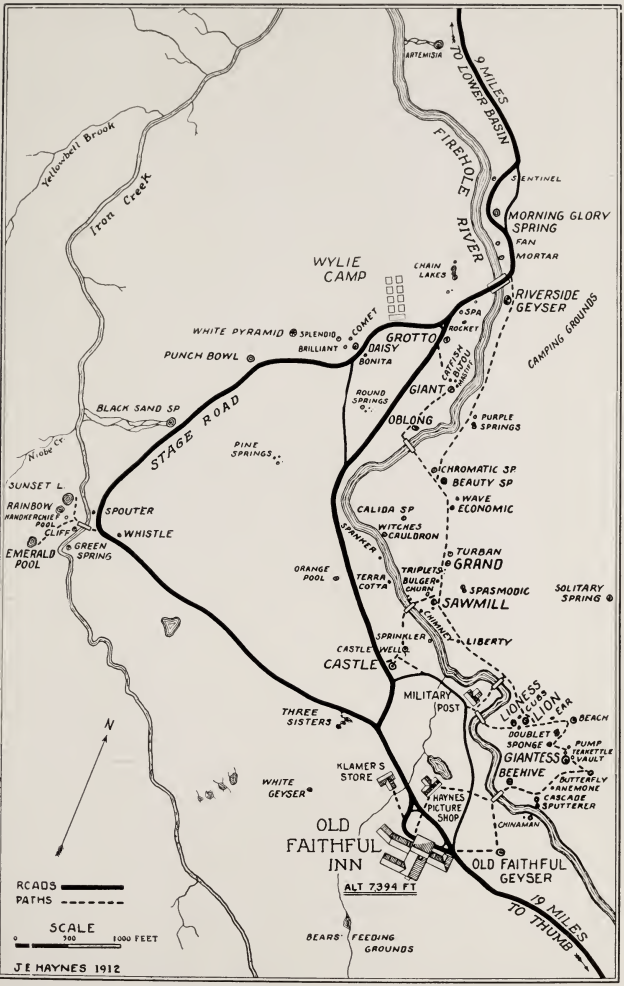
GEYSER TABLE.

UPPER GEYSER BASIN.

Corrected by observations made during the past season.

Geysers at Upper Geyser Basin	Maximum Height	Duration	Intervals
Artemisia	30 ft.	10 min.	12-24 hrs.
Beehive	200 ft.	8 min.	8 hrs. to 8 days.
Castle	75 ft.	30 min.	26 hrs. Frequently misses.
Cliff	100 ft.	8 min.	4-8 hrs.
Cub (Big)	30 ft.	10 min.	With Lioness.
Cub (Little)	6 ft.	3 min.	Frequently.
Daisy	75 ft.	3 min.	1½ hrs. to 1 hr. and 50 min.
Economic	20 ft.	10 sec.	5 min. to 2 hrs.
Fan	6 ft.	10 min.	4-6 hrs.
Giant	250 ft.	1½ hrs.	7-12 days.
Giantess	100 ft.	12-24 hrs.	4-12 days.
Grand	200 ft.	30-60 min.	1-10 days.
Grotto	30 ft.	15 min-8 hrs.	2-8 hrs.
Jewel	30 ft.	2 min.	5 min.
Lion	60 ft.	3 min.	2-8 hrs.
Lioness	100 ft.	10 min.	15-20 days.
Lone Star	50 ft.	10 min.	1-2 hrs.
Mortar	30 ft.	5 min.	2 hrs.
Oblong	20 ft.	5 min.	7-8 hrs.
Old Faithful	150 ft.	4 min.	65-75 min.
Riverside	100 ft.	20 min.	6-7 hrs.
Rocket	50 ft.	2-3 min.	2-8 hrs.
Sawmill	40 ft.	2 hrs.	3-4 hrs.
Spasmodic	10 ft.	10 min.	2-3 hrs.
Splendid	200 ft.		Inactive since 1892.
Sponge	4 ft.	15 sec.	1-¼ min.
Turban	25 ft.	20-60 min.	With Grand & frequently.

The siren at the Haynes Picture Shop announces the playing of the larger geysers.



UPPER GEYSER BASIN.

springs and studded with mounds and cones of geyserite. Here, grouped within the narrow space of, perhaps a square mile, are the grandest and mightiest geysers known to man; and silent pools of scalding, meteoric water that for beauty of formation and delicacy of coloring are marvels. The surface of the basin consists, for the most part, of a succession of gentle undulations, each crowned with a geyser-cone or hot-spring vent and covered with layers of silicious sinter that give it a grayish-white, sepulchral hue. Clouds of vapor hang shroud-like above it; the earth trembles and is filled with strange rumblings, the air is heavy with sulphurous fumes, and vegetable life is extinct. In a paper read before the Cardiff (Wales) Naturalists' Society, Mr. Charles T. Whitmell said: "Nowhere else, I believe, can be seen, on so grand a scale, such clear evidence of dying volcanic action. We seem to witness the death throes of some great American Enceladus. Could Dante have seen this region, he might have added another terror to his Inferno."

The **Fan and Mortar Geysers** are near the river between Morning Glory Spring and the Riverside Geyser, about three hundred feet down stream from the latter. Intervals between eruptions of the Fan vary from four to six hours; it plays for ten minutes but only six or eight feet high. The Mortar plays thirty feet high for five minutes every two hours.

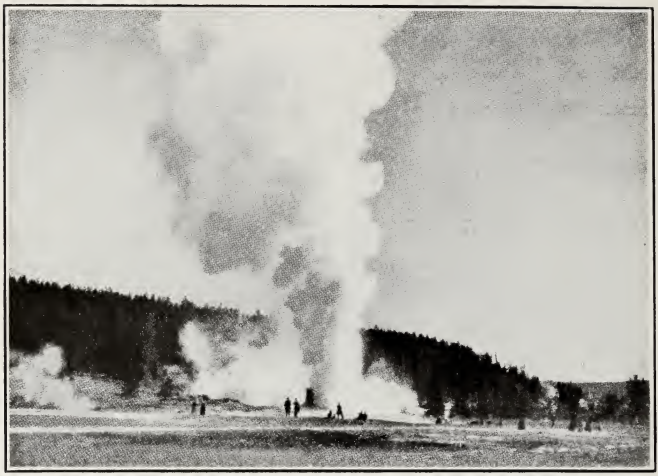
The **Riverside Geyser,** which is situated on the east bank of the Firehole River a few feet above the new steel bridge, erupts every six or seven hours, obliquely across the river; sometimes eruptions take place as

frequently as five and one-half hours for a period of several days, probably on account of an increased supply of water.

The Riverside formation is made up of two craters on a chimney-like mound of silicious deposit; the lower, or main crater, overflows continuously for about an hour before each eruption; jets of water are thrown out about twenty minutes before displays, from the upper crater. The maximum height of the Riverside is one hundred feet; this is maintained for eight minutes, followed by the characteristic steam-period lasting several minutes.

The next feature of prominence passed is the **Grotto Geyser,** which has the most extraordinary formation of any geyser in the park; it received this appropriate name in 1870 from the Washburn party. Eruptions vary in interval from two to eight hours, and are about thirty feet high, lasting any length of time from fifteen minutes to eight hours. Occasionally the Grotto ceases and the **Rocket,** an isolated cone a few feet north, plays to a height of fifty feet for two or three minutes; then the Grotto resumes activity. The pool near the road eighty feet north of the Rocket is called the **Spa** (a mineral spring); it has not been observed to erupt, but empties and fills at intervals indicating a probable relation to some distant geyser.

The **Giant Geyser,** situated about five hundred feet southeast of the Grotto, is the *highest geyser in the world*; it plays two hundred and fifty feet, for a period of one and one-half hours, every seven to twelve days. Its maximum height, however, is maintained only dur-



GIANT GEYSER, UPPER BASIN.

ing the first twenty minutes. The Giant Geyser cone is ten feet high and has one side partly broken off, exposing to view its channel, which is four feet across.

On the same platform of deposit with the Giant are three boiling cauldrons, the **Catfish, Bijou** and **Mastiff,** all of minor importance. Near these is a sign marked "Indicator," but it is very uncertain if activity of the Giant is ever foretold by activity of these smaller basins. However, in some cases geysers do have true indicators, notably the Beehive.

The **Daisy Geyser,** located near the **Wylie Upper Basin Camp,** and the **White Pyramid,** is a very pretty and reliable geyser. The character of its eruptions, which occur every one and one-half to two hours, are

very like the **Splendid Geyser** which ceased to play about the time the Daisy broke out in 1892. The Daisy plays seventy-five feet high; duration, three minutes. Across the road from the Daisy is **Bonita Pool**, which acts as its indicator. The **Brilliant** is a beautiful, blue, quiescent hot spring. Near it is the **Comet**, called a geyser in the past, but now inactive; it still boils up at intervals, and has built up a small cone of geyserite.

Punch Bowl Spring.—The wagon road leading westward from the Splendid toward Black Sand and Sunset Basins passes the Punch Bowl, by far the handsomest spring of its peculiar class to be found in the geyser region, if not in the world. Situated on the summit

WYLIE CAMP, UPPER BASIN.

of a small mound of silicious deposit, some five feet above the general level, it is about ten feet in diameter, with a glittering rim of brilliantly colored formation eighteen inches in height. The constant boiling of its contents, though only a small part of its surface is agitated, as the bubbles of escaping steam and gas arise, produces a wave-like undulation over the entire spring

PUNCH BOWL SPRING, UPPER BASIN.

and gives it a steady and not inconsiderable overflow. A small cave-like opening on the east side of the mound or cone is very handsome, having the appearance of being lined with satin of the rarest beauty and texture. Early visitors to the Park during the seasons of 1873 and 1875 speak of this spring as being an active geyser, and during 1888 similar reports gained currency. Noth-

ing, however, is certainly known as to the correctness of these reports.

Black Sand Spring and Specimen Lake.—Dr. Peale's description of Black Sand Spring is interestingly comprehensive, and is as follows: "This is one of the most beautiful springs in the Upper Basin. It has a delicate rim, with toadstool-like masses around it. The basin slopes rather gently toward a central aperture that, to the eye, appears to have no bottom. The water in the spring has a delicate turquoise tint, and as the breeze sweeps across its surface, dispelling the steam, the effect of the ripple of the water is very beautiful. The sloping sides are covered with a light brown crust; sometimes it is rather a cream color. The funnel is about forty feet in diameter, while the entire space covered by the spring is about 55x60 feet, outside the rim of which is a border of pitch-stone (obsidian) sand or gravel sloping twenty-five feet. From its west side flows a considerable stream, forming a most beautiful channel, in which the coloring presents a remarkable variety of shades; the extremely delicate pinks are mingled with equally delicate tints of saffron and yellow, and here and there shades of green." The overflow from this spring spreads out over a large area, called **Specimen Lake**, which deserves more than passing notice. Absorption of the surrounding silica has destroyed many of the trees in the vicinity, the dry, lifeless trunks adding to the attractiveness of the place, geologically speaking, by affording the appearance of petrifactions.

Leaving Black Sand Spring, the next attractions are

Sunset Lake and Emerald Pool, reached by a foot-bridge over Iron Spring Creek.

Sunset Lake is a beautifully colored pool which steams constantly and, though always boiling hot, never erupts. It is larger than **Rainbow Pool** and situated a few steps north of it. Both are very beautiful, though usually completely enveloped in steam. Several yards north at the edge of the timber is the most beautiful pool in the Upper Basin, **Emerald Pool**; its deep emerald color blends to yellow toward the edge, and the formation is a rich red immediately around it. This pool, though hot, never boils, and is slightly overflowing. Across the river from Emerald Pool is **Green Spring.**

Handkerchief Pool is but a few feet from Rainbow Pool, a small basin with a funnel-shaped opening. A handkerchief placed in the water near the edge will be drawn downward and out of sight by convection currents in the water, and in a few minutes will reappear.

Cliff Spring usually is boiling violently; and though credited by some with having occasional eruptions, it is usually considered to be only a spring. It is close to the foot-bridge on the west side of the river.

The **Whistle,** situated near the road leading toward Old Faithful Inn, performs only at great intervals; but when the great rush of steam commences, as it does several times each season, a whistle-like roar is produced which is audible half a mile, and lasts several minutes.

The **Three Sisters** springs, while attractive, are so like a hundred other boiling pools that they are usually passed without a halt. They are situated in sight of Old Faithful Inn and not far from the Castle Geyser (on the road leading direct from the Riverside Geyser to the hotel).

The **Castle Geyser** is at once recognized by its large cone resembling "an old feudal castle partially in ruins" (Doane). It occupies a prominent position and is visible from the hotel and nearly all parts of the basin. The great amount of deposit, perhaps 100 feet in diameter at its base, and the possession of the largest cone in the whole region, while giving it

CASTLE GEYSER, UPPER BASIN.

an air of conspicuousness at the same time indicate that it is one of the oldest active geysers in the Park. The broken condition of its cone on the east side renders possible an easy ascent to its summit, which is about twenty feet across. The orifice of the geyser tube in the top of the cone is about three feet in diameter, quite round, and is lined with a formation of bright orange color. Eruptions of the Castle occur at intervals of about twenty-six hours, preceded by the occasional throwing out of jets of water to the height of fifteen or twenty feet, perhaps. These premonitory symptoms of eruption generally continue five or six hours, when more violent demonstrations, during which columns of water are shot upward to a height of fully seventy-five feet, ensue, and, continuing for half an hour or so, are followed by a "steam period" similar to that of the Giantess. Several times each season it has eruptions of an unusual character, in which its columns of water are thrown to twice their usual height and its subsequent "steam periods" are proportionately forcible. A violent boiling spring is situated near the base of its cone, on the north side, which used to be a favorite resort of the "camper-out" in earlier days. It is ten feet across, has an apparent depth of 52 feet and a temperature of 199 degrees F.

Castle Well, a large, crested spring 100 feet north from the Castle, is usually very handsome. It generally is filled to overflowing, and the bottom and edges of the channel leading out of the north side are very highly

and beautifully colored. This spring is twenty feet in diameter and overflows on two sides.

Old Faithful Inn (Alt. 7,394 feet), the most extensive log structure yet devised by man, with every convenience and luxury of the modern hotel, is the latest triumph in utilizing primitive material in constructing so unique a building. The rough blocks of stone which form its foundation appear as natural as when found at the base of the cliffs of the surrounding mountains.

The interior is surprising for the grandeur of vast forests conquered. Massive logs tapering on each ascending balcony appear as giant trees. The staircase leading to the lookout has split logs for steps. Windows of diamond shaped panes and dainty French

OLD FAITHFUL INN ENTRANCE.

OLD FAITHFUL INN FROM BEEHIVE CONE.

curtains are exquisitely beautiful against the setting of rough logs. Elbows of natural branches gathered from the neighboring forests form the braces for the numerous gables and frame the many balconies and stairways surrounding the office; while timbers, braced this way and that, support the high roof. The huge doors of the entrance and dining room are noticeable to all. Their hinges and quaint iron locks, together with the immense clock, were hand forged from bar iron. The old time fireplace is a welcoming sight and its chimney, sixteen feet square at its base and made of large lava blocks, towers high through the roof four stories above. The chimney contains four large and four small fireplaces and fastened against it is the

immense clock keeping mountain time. In another chimney in the dining room is constructed the old time spit and oven. In contrast to the rough logs there appear electric candles, hardwood floors, Mission furniture and gay rugs and curtains, all of which give a warmth and richness to the building. The bell on the roof announces interesting and extraordinary events and tolls a quarter of an hour before the opening of the dining room. The center of the building rises eight stories high, surmounted by the lookout that gives a panoramic view of the geyser basin. From half a dozen golden topped flagstaffs float the emblems of various nations. At night, by the aid of a powerful search light, one discerns geysers in action, bears feeding at the edge of the timber, while the illumination of Old Faithful Geyser in action is a sight never to be forgotten. The Old Faithful Inn was built at a cost of two hundred thousand dollars and was open to the public for the season of 1904.

Old Faithful Geyser.—Less than 1,000 feet east, and in plain sight from the hotel, is located this reliable friend of the tourist. Every sixty-five minutes (with rarely a variation of five minutes) day and night, summer and winter, this wonderful freak of nature gives its exhibition. The position and direction of the sun and wind vary the appearance of this geyser, which is one of the most popular in the Park, because of the remarkable regularity with which its eruptions occur, and the excellent opportunities afforded for observation. Eruptions by moonlight, at sunrise or sunset, in a storm or with clear weather, with their varied

OLD FAITHFUL GEYSER AT SUNRISE.

effects, command the attention of the visitor, regardless.

Its eruptions begin with a few spasmodic spurts, during which considerable water is thrown out; these are followed in from five to eight minutes by a column of hot water two feet in diameter, which is projected upwards to a height of 125 to 150 feet, when it remains apparently stationary for about three minutes. The crater is an oblong opening two by six feet on the inside and four by eight on the outside; it is situated on a mound of geyserite, measuring at the base 145x215 feet, at the top 20x54 feet, the whole rising about twelve feet above the level surrounding. This mound is composed of layers of deposit in a succession of distinctly marked terraces which are full of shallow, basin-like

pools, the water in which is clear as crystal, and their edges or rims exquisitely beaded and fretted, their bottoms showing delicate tints of rose, white, saffron, orange, brown and gray.

The north end of this crater has large globular masses of beaded, pearly deposit, and its throat is a rust color.

The **Beehive Geyser** is situated almost in front of Old Faithful Inn on **Geyser Hill** across the river, about one hundred feet north of the footbridge. Its symmetrical cone, shaped like an old-fashioned beehive, is four feet high and three feet across. The Beehive plays out of its nozzle-like opening to the amazing height of two hundred feet, with a loud, roaring sound, and with such force that practically all of the water, which is extremely hot, converts into steam and spray, and disappears in the air. During eruptions it is possible, though now forbidden by law, to approach from the windward side of this geyser, and touch the cone without danger of being splashed.

Eruptions of the Beehive are foretold by the spouting of its indicator, a small, inconspicuous fissure in the formation ten feet north of the cone. Whenever this indicator plays, one should make for the Beehive without delay, and even though the indicator is not infallible, it usually signifies that in less than fifteen minutes the Beehive will erupt—a sight never to be forgotten.

There is undoubtedly some relation between this geyser and the Giantess, a hundred yards higher up on Geyser Hill, because invariably after eruptions of the Giantess, the Beehive plays two, three and some-

times four times, at intervals of eight to twelve hours; and occasionally, but rarely, once *before* the Giantess, but at no other times.

A few feet east of the Beehive cone at the top of the river bank, is the **Cascade Geyser,** now but a quiet spring. Down at the river's edge is the **Sputterer,** which discharges at intervals directly into the river. On the opposite bank is the **Chinaman Geyser,** which was named in memory of the Mongolian who established a laundry here, put in the clothes and soap, and was annihilated, so the story goes, by the violent eruption which ensued. It is a remarkable fact that a bar or two of soap will cause practically any geyser to play within a few minutes. The practice of causing eruptions in this manner became so common a few years ago that the government put a stop to it, as it was feared some of the best geysers would be ruined. It is unlawful to throw any substance into the springs or geyser vents, or to injure, or disturb, in any manner, or to carry off any of the mineral deposits, specimens, natural curiosities, or wonders within the Park.

The **Giantess Geyser** occupies the most prominent position on Geyser Hill. Its displays attain the height frequently of one hundred feet, and are accompanied by shocks and tremors not unlike earthquakes. After the thirty-foot crater of the Giantess is emptied, a steam-period ensues, the entire eruption lasting from twelve to twenty-four hours. During 1911 the records show that the intervals between eruptions varied from four to twelve days; while a few years ago the Giantess

played only every three to four weeks. This accurate record disproves, in this case at least, that the geysers are all diminishing in eruptive violence and frequency. It is now pretty generally believed that, while this thermal activity *is* decreasing as a whole, that a century marks only an imperceptible change. The late N. P. Langford, writer and explorer, who visited the Park with the Washburn party in 1870, stated in 1910, while at the Upper Basin, that he saw absolutely no change in Old Faithful Geyser, or any of the others to warrant the assertion that geyser activity is on the decline.

The **Butterfly Spring,** several rods east of the Giantess, is interesting from the fact that its shape and coloring closely resembles a butterfly; this spring is about four feet across and has openings in both "wings."

On the prominence with the Giantess, are two cauldrons, the one having a rim is the **Teakettle,** the other the **Vault**; the latter being a geyser which plays eight feet high twenty-four hours before the Giantess. **Topaz Pool** is at the base of the Giantess Mound.

The **Pump,** at the foot of the Giantess mound in the direction of the Sponge Geyser, is a hole eighteen inches across out of which comes a thumping sound at intervals closely resembling an hydraulic ram at work.

Sponge Geyser, a short distance east of the Giantess, is remarkable chiefly on account of the appearance of its cone. Here is a flinty formation, porous and colored like a sponge. The eruptions occur a minute and a quarter apart and are only about four feet; in reality

nothing more than intermittent periods of violent boiling.

Doublet Pool, marked "Dangerous" on the signboard, is a good example of the overhanging crust formation. No doubt in time it will be practically all covered over; although this *sinter* formation, characteristic of the entire Upper Basin, forms very slowly.

Beach Spring, north of the Doublet, is very interesting; it consists of a central opening surrounded by a rather wide, submerged beach, which is symmetrical and practically flat.

The **Ear** is on the summit of a mound between the Beach and the Lion group. Curiously enough it not only resembles an ear in shape, but the lobe is pierced and the earring is a tiny geyser. It is here that messages are transmitted, so the story goes, to regions below.

The **Lion Geyser,** with the Lioness and two Cubs, occupies a conspicuous mound west of the Giantess and in sight of the hotel. Its eruptions occur usually in series of three, about two and one-half hours apart, following a quiet period of twelve hours. The first eruption of the three is the most spectacular, being about sixty feet high and lasting five minutes.

The **Lioness Geyser** has been observed not to play at all some seasons, while during other seasons eruptions have been noted at intervals of about fifteen days. In 1903 the Lion, Lioness and both Cubs played simultaneously one day for a large party of tourists; this remarkable exhibition is attributed (by some) to the completion that year of the famous Old Faithful Inn.

UPPER GEYSER BASIN.

The larger Cub plays with the Lioness to a height of thirty feet; the smaller one plays frequently, but only a few feet high.

A path leads from the Lion group past the **Liberty Pool** to the **Sawmill Geyser,** without crossing the river. The Sawmill gets its name from the peculiar noise accompanying eruptions; the maximum height of this geyser is forty feet, interval three to four hours. Its indicator is a few feet southeast; both the indicator and the Sawmill start together, and very suddenly, throwing water in every direction.

Passing the **Bulger, Tardy,** and **Triplets,** all of minor importance, the Grand group is reached next.

The **Grand Geyser** is one of the finest in the park; it

discharges forked columns of water to a height of two hundred feet in a series of ten or twelve distinct eruptions. It is very irregular, playing at intervals varying from one to ten days; its duration is usually from thirty to sixty minutes. The Grand Geyser plays much more frequently in the spring than in the fall, probably as the water supply from the surrounding mountains is greater at that time of the year.

Adjacent to the Grand Geyser crater is the **Turban Geyser,** which plays out of a small fissure next to the main crater of the Turban. When quiet, the larger crater often presents the appearance, in its interior, of a dancing flame, caused by the light playing on the bubbles of gas which constantly arise therefrom. This illusion is so realistic that many of the early explorers really believed that internal fires were visible here. Firehole Lake, at the Lower Basin, also affords a good example of this phenomenon. The Turban plays twenty-five feet high and at an angle, eruptions lasting an hour or more, and occurring with the Grand Geyser and at other times.

The fittingly-named **Economic Geyser** is a few rods north of the Turban; after its eruptions, which occur at intervals following the Grand Geyser, all the water expelled flows back into the crater and disappears. The Economic is only fifteen or twenty feet high, but in general form resembles Old Faithful Geyser.

Beauty Spring, a large, silent pool, is remarkable for its beautiful coloring and its highly ornamental margin. **Chromatic Pool,** near Beauty Spring, offers a good example of colored geyser formation; a rust color

predominates in various shades from yellow to richest brown, blending into green and delicate pinks. The mushroom-like algous growths seen in some of the bordering pools are of interest, even to the casual observer, on account of their peculiar forms and colors, and to the scientist who knows what an important part the algae have in the rate and manner of deposition of silica.

The **Oblong Geyser,** so named on account of the shape of its crater, is on the opposite side of the Firehole River from Chromatic Pool. Its eruptions are of minor importance, the crater being remarkable in that no better example of interior geyser structure is seen in the entire park region. Large globular masses

OBLONG GEYSER CRATER.

of tan colored geyserite form the rim; the water is a delicate blue color and of such transparency that the two fissures in the bottom of the crater are plainly seen. Preceding eruptions the crater fills to the shore line and boils for fifteen minutes, so the best time to view the crater is immediately after an eruption, when the water level is lowest.

GEOLOGICAL.—A geyser may be defined as a periodically erupting hot spring. Its water is not volcanic, but simply hot meteoric water; so a geyser is not a volcano ejecting water but a true spring. Were the heat sufficient and the tube long enough all hot springs would erupt.

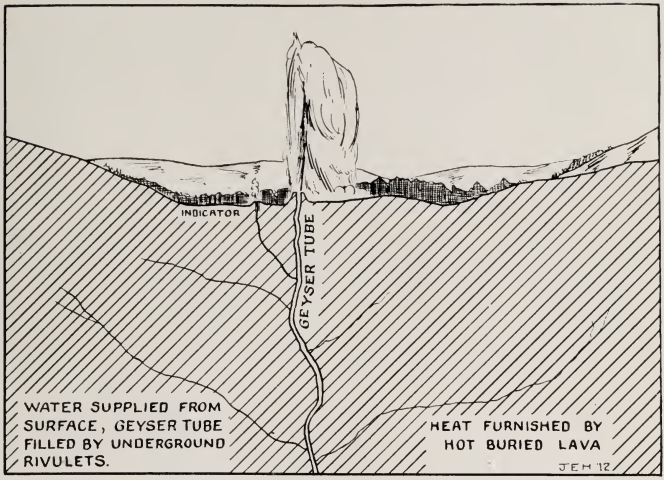
Sounds like cannonading are heard directly preceding a geyser eruption; this is caused by the collapse of steam bubbles from the hotter region below rising through the cooler strata of water. The surface of the pool, from which the geyser plays, bulges and overflows, and sometimes jets of water are thrown upward preceding activity.

The famous scientist R. W. Bunsen, after making a careful study of geyser action by extensive observation and experiment, advanced the following authoritative explanation:

It is well known that the pressure in water (being due to gravity) increases with the depth; and furthermore, that the boiling point rises with the increase in

A miniature, mechanical geyser, **"Old Faithful, Jr.,"** is on exhibition at the Haynes Picture Shop, Upper Basin; it accurately demonstrates the Bunsen Theory and is furnished by the publisher of this book. *A real hot water, erupting geyser. Do not fail to see it.*

The playing of the larger geysers is announced by an electric **Siren** at the Haynes Picture Shop.



GEOLOGIC PROFILE, TYPICAL GEYSER.

pressure. The geyser tube which extends deep into the earth is filled with water from the higher tracts of land around; the heat is from the buried masses of lava not yet cool, lava being such a great non-conductor and retainer of heat.

The typical geyser eruption may be divided into five stages, namely, (1) the water remains practically stationary after the tube has filled, and becomes steadily hotter, (2) steam bubbles rising through the cooler strata of water, collapse, producing the characteristic premonitory "cannonading," (3) steam forms below in sufficient quantity to cause the surface to overflow, thus the pressure is lessened in all parts of the tube, and (4) the great burst of steam ensuing, ejects all

the water from the tube, (5) the steam follows and while the tube is filling for another eruption, there is no activity other than occasional puffs of steam.

From the Upper Basin to Yellowstone Lake (19 miles) the route is over the summit of the continental divide, near Shoshone Lake, the head waters of Lewis Fork of Snake River (a branch of the Columbia that empties into the Pacific Ocean); and in a few miles returns to the Atlantic Slope at Yellowstone Lake, whose waters reach the ocean through Yellowstone, Missouri and Mississippi rivers.

The road leads up the Firehole River, which it crosses and climbs an ascent to

Kepler Cascade, less than two miles distant, whose waters leap from shelf to shelf in a rocky chasm in a series of enchanting falls, aggregating 100 to 150 feet in height, and whose charms are enhanced by the dark background of forest on either hand. The roadway continues up the Madison about two miles to the third crossing, when it leaves the river, following the course of Spring Creek nearly to the summit of the Divide.

Lone Star Geyser is off the main road and is visited only as a side trip. Its cone, twelve feet high, has a large central opening and numerous adjacent small ones from which water is thrown during eruptions. The cone is the principal attraction of this geyser although the eruptions are at times 75 feet high.

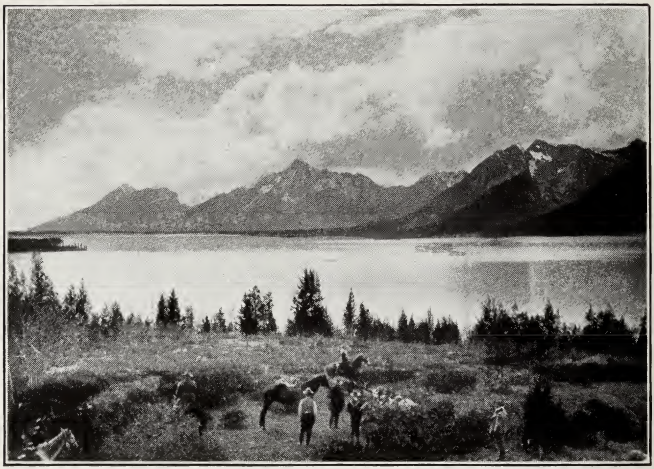
KEPLER CASCADES.

The road leaves the Firehole two miles from Upper Basin and follows the course Spring Creek nearly to the summit of the Continental Divide.

At a point eight miles from Upper Basin is **Norris Pass** through which a trail leads south to Shoshone Lake. **Craig Pass** is one-half mile further.

Isa Lake is next passed; its waters flow to both the Atlantic and Pacific Oceans from the summit of the Continental Divide. **Two Ocean Pond** is also on the summit of this range a few miles south of Yellowstone Lake off the main route.

The **Continental Divide,** crossed twice between the Upper Basin and Yellowstone Lake, is a great range of mountains extending from Canada to Mexico. It enters the Yellowstone Park near the Western Entrance and extends through the reserve to its southern border forming the water shed between Yellowstone Lake and the headwaters of Snake River.



JACKSON LAKE AND TETON MOUNTAINS.

Shoshone Point affords one of the most commanding views of this ride. It overlooks the country to the south, Shoshone Lake in a beautiful valley, and the Teton Mountains many miles south.

From Shoshone Point the drive is less attractive; however, it again crosses the continental divide at a "pass" so level that it is difficult to know when the summit is really reached.

Shoshone Lake has an area of about a dozen square miles, with an irregular shore line. Shoshone Geyser Basin, situated on the west shore of the lake, has several large geysers and numerous interesting springs; it is reached by trail from the Lone Star Geyser.

On a clear day from Shoshone Point may be seen the three snow-capped "Sentinels" of the Teton Mountains fifty miles distant, that form a portion of the boundary between the states of Wyoming and Idaho, their dizzy heights, full 14,000 feet, overtopping all other peaks of the Rockies.

Lake View.—A mile from the lunch station at Thumb Bay, one catches the first glimpse of Yellowstone Lake. From this point Mr. David E. Folsom, of the Folsom and Cook exploring party in 1869, says: "As we were about departing on our homeward trip we ascended the summit of a neighboring hill and took a final look at Yellowstone Lake. Nestled among the forest-crowned hills which bounded our vision lay this inland sea, its crystal waves dancing and sparkling in the sunlight as if laughing with joy for their wild freedom. It is a scene of transcendent beauty which has been viewed by but few white men, and we felt glad to have looked upon it before its primeval solitude should be broken by the crowds of pleasure seekers which at no distant day will throng its shores."

YELLOWSTONE LAKE AND SLEEPING GIANT.

Thumb Bay Lunch Station (Alt. 7,788 ft.) is pleasantly situated on the shore of Yellowstone Lake facing Thumb Bay and the **Wylie Thumb Camp** is near at hand at the edge of the timber.

At the Thumb there are several geyser cones, paint pots and springs. The **Paint Pots** are not so large as those at the Lower Basin but they are different.

The **Lake Shore Geyser,** 100 yards from the Hotel, plays at intervals several feet high. The **Fishing Cone** was named by the Expedition of 1870. This cone, with a boiling spring in its centre projects above, and is surrounded by, the cold water of the Lake. This is the famous place where fishermen stand and, after catching trout in the Lake, boil them while still on the hook in the hot spring, (a practice now prohibited by law.)

Tourists have an opportunity of taking a steamer or launch from Thumb Bay Lunch Station to the Colonial Hotel at the Lake outlet—a very pleasant ride.

The **Southern Entrance to the Park.**—A wagon road has been constructed south from Yellowstone Lake, passing Lewis Lake and continuing down the valley of Snake River to the southern boundary of the Park and Jackson Hole.

The **Natural Bridge** is passed on the drive around the Lake 3½ miles from the Lake Hotel. It spans a small creek and looks quite symmetrical from the lower side. Its abutments are thirty feet apart, and the arch sixty feet high.

The **Yellowstone Lake** is the largest at its altitude (7,741 ft.) in the world with the exception of Lake

YELLOWSTONE LAKE BY MOONLIGHT.

Titticacea, Peru. It is twenty miles across and of very irregular outline. The Absaroka Range of snow-capped mountains rise from the water's edge to altitudes of ten or eleven thousand feet.

Several islands dot the surface of this icy sheet of water, Stevenson and Frank Islands being the largest.

COLONIAL HOTEL, YELLOWSTONE LAKE.

Sheltered as it is, the surface is seldom rough. The Yellowstone River is at once its principal affluent and sole outlet, its upper portion draining a considerable area tributary to the lake on the southeast, and the vast body of water thus accumulated in this natural mountain reservoir serves not only to furnish a never-failing supply for one of the grandest of the Missouri's tribu-

taries, but supplies the means of successful irrigation of the entire lower Yellowstone Valley.

Sleeping Giant.—In the mountain range on the east side of the lake can be seen the "Sleeping Giant." It is formed of the peaks of Saddle Mountain in connection with a mountain range several miles this side.

FISHING BOATS AT LAKE OUTLET.

Fishing Grounds.—In the river at the lake outlet are the fishing grounds about a mile from the hotel, while at many places between the lake and canyon excellent fishing is had from shore. During the trout season (July to September), no better fishing can be found. They average about one and one-half pounds each,

and are of the *salmo myhiss* variety—a catch of 20, three or four hours before sundown, is not infrequent.

Hotel at the Outlet.—This spacious and elegantly appointed hotel tends greatly toward making Yellowstone Lake the resort par excellence of the Park. Here everything is so arranged that guests can spend the entire season, if they so desire, making short, easy trips of sight-seeing or exploration to all points of the great reserve. The falls and canyon are distant but 17 miles, a well constructed road leading thither; the great geyser basins are scattered along a stage route, whose extreme length is not above 40 miles from this hotel, while to the eastward some fifty miles lies the **Hoodoo Region or Goblin Land,** a weirdly wild region, as yet visited by only a few.

To visit any or all of the points circumjacent to this grand mountain lake, vehicles of all kinds, saddle and pack animals, guides, rowboats, launches and steamers, are ever at command. The **Wylie Lake Camp** is pleasantly situated near the lake outlet on the west of the road.

Eastern Entrance to the Park. Cody, Wyoming on the Burlington Road is 86 miles from the Lake Hotel. Hotels have been constructed along this route and camping outfits, or licensed transportation may be secured at Cody. This entrance is considered one of the finest as the mountain scenery is excelled in few other places.

A substantial bridge spans the Yellowstone River

about two miles from the Lake Hotel. The road passes through the valley of Pelican Creek, along the south shore of Turbid Lake, and gradually ascends the mountains along the foot hills of Avalanche Peak to **Sylvan Pass,** on the headwaters of Clear Creek. Before the pass is reached one of the finest panorama views of the Park is to be had. Yellowstone Lake occupies the foreground, and the distant snow-clad peaks of the Tetons, Quadrants, Electric Peak, Mount Washburn, and the entire Rocky Mountain range within the Park, outline the horizon. It is about eighteen miles from the Lake Hotel to Sylvan Pass, and a side trip to this rugged portion of the Park is now possible.

Yellowstone Lake to Falls and Canyon.—The road from the lake to the Grand Canyon follows the valley of the Yellowstone the entire distance, seventeen miles, and most of the way quite near the river through Hayden Valley. One of the principal sights is the

Mud Volcano, 7½ miles from the Lake Hotel a few rods west of the road on the mountain side; its funnel-shaped crater is 30 feet deep and the same number of feet across and is partly filled with a lead colored mass of mud in violent motion producing an effect both repulsive and fascinating. In 1898 most violent eruptions occurred and the mud plastered trees were in evidence for some time.

Green Gable Spring a few rods north of the Mud Volcano, is a beautiful overflowing hot pool beneath a natural rock gable colored a rich green. This most attractive sight is in pleasing contrast to the violence of the Mud Volcano.

GRAND CANYON BRIDGE.

The road from Sulphur Mountain to the Canyon Hotel soon joins the main road along the river, passes over a rolling country, and skirts the banks of the Yellowstone until nearly to the Upper Falls.

Grand Canyon Bridge.—The construction of this magnificent concrete bridge over Yellowstone River, at the head of the rapids above the Upper Falls, affords

visitors an opportunity of now viewing the Grand Canyon from the opposite side at Artists' Point where an unobstructed view of the Falls and Canyon is obtained.

The **Upper Falls** has a perpendicular drop of 109 feet, and the water, striking the shelving rock formation at the bottom of the abyss, shoots out in rocket-like

UPPER FALLS OF THE YELLOWSTONE—109 FEET.

columns. Above the falls a jutting point of rock affords an excellent view of the rapids and foaming waters rushing over the precipice. A footpath leads to the bottom of the Upper Falls, (where very fine brook trout fishing may be enjoyed); and midway between this point and the Lower Falls, Cascade Creek enters the river.

Crystal Falls is below the bridge which spans the creek. The aggregate fall, including the cascades above, is about 130 feet, and a ladder to Grotto Pool allows an inspection of them, though these minor attractions possess little charm to the tourist when so near one of the grandest canyons in the world.

The Wylie Canyon Camp, a night station, is located near Canyon Junction.

The **Great Falls** of the Yellowstone, 308 feet in height, is a quarter of a mile below the Upper Falls. Not far from the Canyon Hotel is a recently-built stairway descending to the very brink of the Great Falls. This view overlooking the awful plunge of seething waters twice as high as Niagara, is grand almost beyond expression.

Gazing down the canyon from the brink of the Falls one sees Point Lookout rising 1,200 feet above the river. Almost directly opposite, on the right hand side of the canyon, is Artist's Point.

The **New Grand Canyon Hotel,** situated at the Great Falls and Grand Canyon, was opened to the public June 15th, 1911. It cost over three-quarters of a million dollars, and has accommodations for over five hundred guests.

Spending the day at this hotel is a pleasure. A cozy foyer, extensive lounge, capacious dining room, each elegantly furnished and of novel architecture, are exceptionally attractive. The service, too, is

GRAND CANYON HOTEL.

above reproach; every convenience for the traveler is supplied.

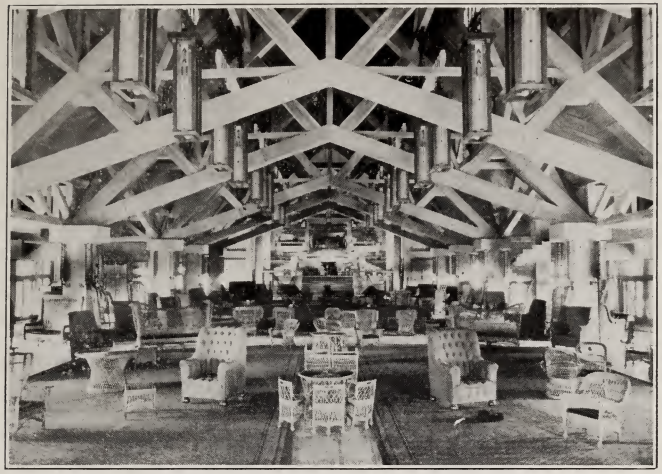
It is remarkable that so many miles from any railroad hotels can be so well supplied with equipment and food supplies that they rival the best hostelries in the large cities. The electric lights are artistically arranged in ornamental, hanging lanterns, and in some cases the invisible lighting is used; a large power and heating plant is a part of this hotel not usually visited; its ice plant was the first installed in the reserve. Telephones connect the various floors and rooms;

GRAND CANYON HOTEL OFFICE.

and elevators save both time and effort, and are a necessary part of so large a hotel.

Away from the main part of the building is the lounge, where concerts and dances are held. Adjoining it are tea and buffet rooms. The orchestra occupies a position in an especially arranged landing of the main staircase connecting the lounge with the hotel office.

Mr. Robt. C. Reamer, architect, designed and built this magnificent hotel against great odds. Three hotels belonging to the Yellowstone Park Hotel Company stand to his credit, the unique Old Faithful Inn, the largest log structure in the world, the Lake Hotel,



GRAND CANYON HOTEL LOUNGE.

which he remodeled and enlarged, and this, the Grand Canyon Hotel, which is a masterpiece.

A pleasant side trip can be made to Mount Washburn and other places in the vicinity.

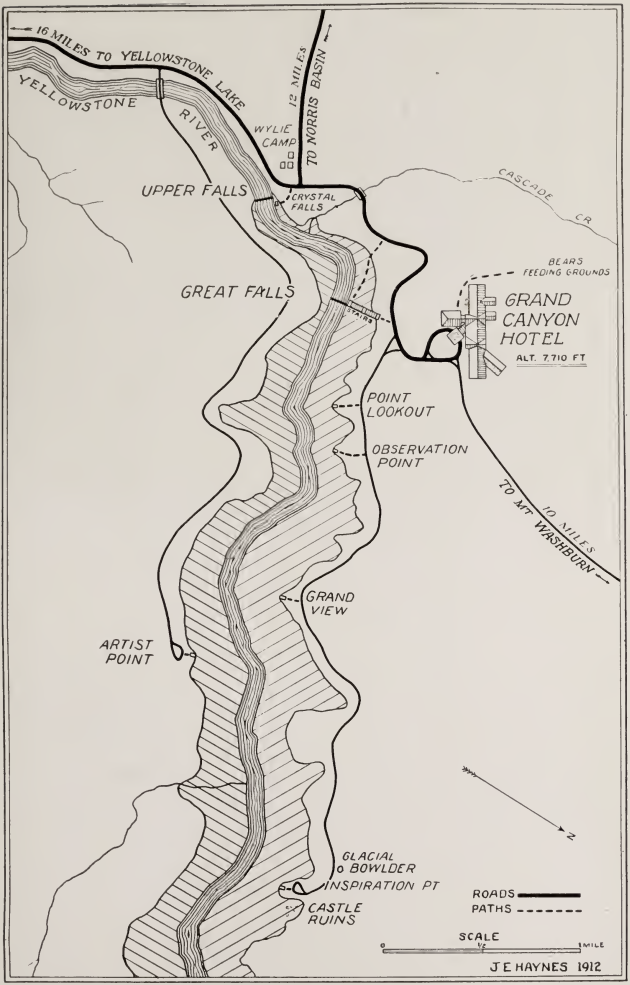
Point Lookout.—The driveway follows, as nearly as practicable, the very edge of the canyon from the falls to Inspiration Point, about three miles. Point Lookout is about half a mile below the falls, and commands altogether the best combined view of the Great Falls and Grand Canyon. It is fully 1,200 feet above the river and nearer the hotel than any of the several points of observation. **Red Rock** under Point Lookout, to which a perfectly safe trail leads down the

GREAT FALLS OF THE YELLOWSTONE—308 FEET.

ravine near the point, affords the best view of the falls possible for tourists to obtain.

Grand View.—There are many projections between Lookout and Inspiration Points, from which glimpses of the canyon may be had. Grand View is about midway between Point Lookout and Inspiration Point, nearly opposite **Artist's Point** on the opposite side of the canyon. It affords an excellent view of the canyon and of the rugged cliffs about Inspiration Point.

Inspiration Point is considered the best place from which to see and appreciate the immensity of the canyon; it is two miles from Point Lookout and over 1,000 feet above the river.



GRAND CANYON OF THE YELLOWSTONE.

Glacial Bowlder is passed on the drive from the hotel to Inspiration Point on the north side of the canyon.

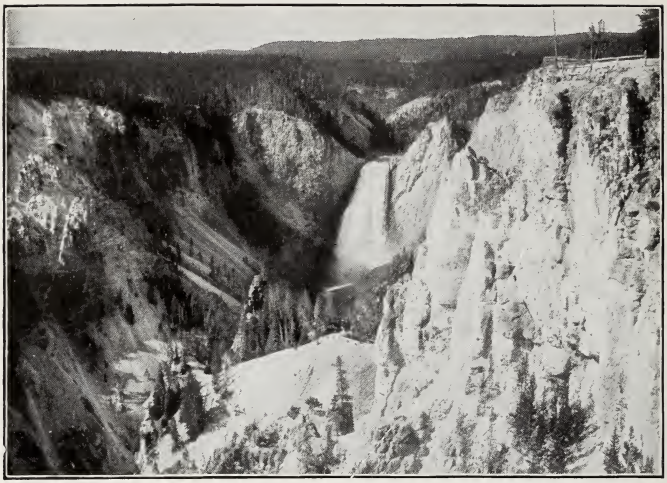
This huge block bespeaks the great transporting power of the glaciers; it is alone among mountains and canyons of a finer rock texture and was brought from a point many miles distant from its present resting place.

The interestingly graphic and faithful pen picture of the **Grand Canyon and Great Falls of the Yellowstone,** by the Rev. Dr. Wayland Hoyt, follows:

"Look yonder! Those are the Lower Falls of the Yellowstone. They are not the grandest in the world, but there are none more beautiful. There is not the breadth and dash of Niagara, nor is there the enormous depth of leap of some of the waterfalls of the Yosemite. But here is majesty of its own kind, and beauty, too. On either side are vast pinnacles of sculptured rock. There, where the rock opens for the river, its waters are compressed from a width of 200 feet between the Upper and Lower Falls, to less than 100 feet when it takes the plunge. The shelf of rock over which it leaps is absolutely level. The water seems to wait a moment on its verge; then it passes, with a single bound, 308 feet into the gorge below. It is a sheer, unbroken compact, shining mass of silver foam. But your eyes are all the while distracted from the fall itself, great and beautiful as it is, to its marvelous setting; to the surprising, overmastering canyon into which the river leaps, and through which it flows, dwindling to but a foamy ribbon there in its appalling depths. As you

GRAND CANYON, FROM BRINK OF FALLS.

cling here to this jutting rock, the falls are already many hundred feet below you. The falls unroll their whiteness down amid the canyon glooms. * * * These rocky sides are almost perpendicular; indeed, in many places the boiling springs have gouged them out so as to leave overhanging cliffs and tables at the top. Take a stone and throw it over; you have to wait long before you hear it strike. Nothing more awful have I ever seen than the yawning of that chasm. And the stillness, solemn as midnight, profound as death. The water dashing there, as in a kind of agony, against these you cannot hear. The mighty distance lays the finger of silence on its white lips. You are



POINT LOOKOUT AND GREAT FALLS.

oppressed with a sense of danger. It is as though the vastness would soon force you from the rock to which you cling. The silence, the sheer depth, the gloom burden you. It is a relief to feel the firm earth beneath your feet again, as you carefully crawl back from your perching place.

"But this is not all, nor is the half yet told. As soon as you can stand it, go out on that jutting rock again and mark the sculpturing of God upon those vast and solemn walls. By dash of wind and wave, by forces of the frost, by file of snow plunge and glacier and mountain torrents, by the hot breath of boiling springs, those walls have been cut into the most various and surpris-

ing shapes. I have seen the 'middle age' castles along the Rhine; there those castles are reproduced exactly. I have seen the soaring summit of the great cathedral spires in the country beyond the sea; there they stand in prototype, only loftier and more sublime.

"And then, of course, and almost beyond all else, you are fascinated by the magnificence and utter opulence of color. Those are not simple gray and hoary depths, and reaches and domes and pinnacles of sullen rock. The whole gorge flames. It is as though rainbows had fallen out of the sky and hung themselves there like glorious banners. The underlying color is the clearest yellow; this flushes onward into orange. Down at the base the deepest mosses unroll their draperies of the most vivid green; browns, sweet and soft, do their blending; white rocks stand spectral; turrets of rock shoot up as crimson as though they were drenched through with blood. It is a wilderness of color. It is impossible that even the pencil of an artist can tell it. What you would call, accustomed to the softer tints of nature, a great exaggeration, would be the utmost tameness compared with the reality. It is as if the most glorious sunset you ever saw had been caught and held upon that resplendent, awful gorge.

"Through nearly all the hours of that afternoon until the sunset shadows came, and afterwards amid the moonbeams, I waited there, clinging to that rock, jutting out into that overpowering, gorgeous chasm. I was appalled and fascinated, afraid, and yet compelled to cling there. It was an epoch in my life."

MOUNT WASHBURN.

Grand Canyon to Norris Geyser Basin.—The twelve-mile drive between the Canyon and Norris is through an undulating pine forest the greater part of the distance. It passes over a "divide" separating the Yellowstone and Missouri Rivers at an altitude of more than 8,000 feet. Between the five and six-mile posts, on the south side of the road are the **Wedded Trees.** The **Virginia Cascades** are about three miles from Norris, being quite unlike the many falls and cascades seen throughout the park.

(Tourists entering the Park at the Western Entrance, Yellowstone, Mont., will find the description of the route from Mammoth Springs to Gibbon Junction pages 16 to 39.)

A **Side Trip** to the summit of **Mt. Washburn** (Alt. 10,388 feet) may be made from the Canyon Hotel in vehicles built expressly for this purpose. This mountain, named for General H. D. Washburn, of the Expedition of 1870, is the most famous park promontory; from its summit on clear days a remarkably wide view of the park region may be had; even the Teton mountains many miles south of the park are visible. Except on clear, still days it is not advisable to attempt this trip, as it is dangerous and unpleasant on account of the high winds that prevail on the mountain top; and the clouds and mist obstruct the view. The road to the summit is not open until about the middle of July each year, when the snow has left the mountain.

A **Side Trip** from the **Canyon** to **Mammoth Hot Springs** via Dunraven Pass and Tower Falls may be made when conditions are favorable. It is about ten miles to Tower Falls from Mt. Washburn. Near Tower Falls is the Y-W Stage Company's **Relay Station**; the Soldier Station and the **Wylie Camp** are about a mile and a half from the falls, the latter equipped to accommodate a limited number of visitors over night if desired.

Tower Falls is 110 feet high; near it are the tall rock spires unlike any other lava formation in the park. Across the Grand Canyon from the mouth of Tower Creek the canyon wall is capped with a thick layer of lava which is distinctive of this portion of the park.

The **Petrified Trees** are situated one-half mile south of the main roadway, about eighteen miles from Mammoth Hot Springs; they are reached by a side road, and consist of two large stumps standing in their natural positions on the hillside.

Undine Falls of the east fork of Gardiner River is the next attraction on the drive; it is composed of two pretty cascades, one twenty feet high and the other forty. From this point the road enters the canyon and descends gradually to the junction of the East and Middle forks of the Gardiner River. After crossing the river on the high steel trestle, Mammoth Hot Springs is soon reached.

A **Side Trip to Bunsen Peak** and **Osprey Falls** is well worth taking. The road to Osprey Falls leaves the main road to Golden Gate and winds up the eastern slope of Bunsen Peak to a point 1,200 feet above the Middle Gardiner River. The falls is 150 feet high and is viewed from the brink of the canyon where the walls are almost perpendicular. To return to Mammoth it is advisable to complete the trip around Bunsen Peak to Swan Lake flat near Golden Gate, to the intersection with the main road, a very enjoyable drive.

ANIMALS OF YELLOWSTONE PARK.

ALTHOUGH unfenced, Yellowstone Park is perhaps the best game preserve in North America. Being suited to the habits of such a large number of species of large and small animals, it preserves them in their natural state free from the molestation

A BUFFALO HEAD.

of the hunter. With exception of the Mountain Lion and Coyote, both of which are very harmful to the

young of other large game, especially the young Mountain Sheep, Elk, Deer and Antelopes, all animals that naturally inhabit this remarkable region are protected in every possible way. All hunters and poachers are rigidly excluded, and in winter, when procuring forage is difficult, the Elk and Antelopes are supplied with hay. On account of the fact that the buffalo is fast becoming extinct throughout the country, a corral has been constructed near Mammoth Hot Springs for a small herd of these animals, where it is hoped they will multiply and be perpetuated.

The **Buffalo,** or **American Bison,** which but a few years ago grazed in countless thousands on the Western plains, are now counted in tens; only a score or more remain in their natural state—straggling remnants of perhaps the stateliest species of hoofed animal in America; these are roaming over secluded areas in the park unmolested and are seldom seen.

The **Prong-horned Antelope,** found only in North America, lives in isolated bands in but few localities in the Rocky Mountains, chiefly in the Yellowstone Park. This keen-eyed animal, fleet of foot and timid, will doubtless soon become extinct in all places but the park; as it does not endure in captivity it must be preserved in its wild state. Like the Elk, Deer and Caribou, the Prong-horned Antelope sheds its horns each year, and they are renewed each year.

Big Horn Sheep, or **Mountain Sheep,** are found where the scenery is grandest in high mountain places where none but bold and reckless climbers would dare to go. Its young are reared in the highest and

most inaccessible places, and as a result, the larger birds are their only dangerous enemy. Bands of Mountain Sheep frequent the high bluffs overlooking Gardiner Canyon at the northern part of the park. They are also found in a few widely separated localities in the Rocky Mountains from British Columbia to Mexico. No other wild animal has circling horns; those of the Mountain sheep make nearly a complete circle and are built round and very heavy.

A PARK BEAR.

Of the bears that inhabit the park in great numbers, the **Grizzly**, or **Silver Tip**, easily deserves first mention; it is the most celebrated of all the bears in the world. Although it is said that more hunters have been maimed and killed by the Grizzly than all other

bears of the world combined, he seems to realize that he is being protected and does very little harm in the park. Unless he is cornered, or thinks he is cornered, he will invariably flee from man. The high shoulders, powerful proportions and grizzly-gray hair easily distinguish him from the others. He is a great traveler, swims well, but is unable to climb trees; his food consists of practically anything he can chew, but he is decidedly partial to berries and fruits of all kinds.

The **Black Bear** is jet black all over except his nose, which is brown; however, a confusing fact about the Black Bear is that frequently its color runs into brown, or cinnamon colors. In one litter there have been found cubs both black and brown. When of a brown color it is called the **Cinnamon Bear**; both are smaller than the Grizzly, are good climbers and, though usually timid, fight in a rough and tumble fashion, with much roaring and growling.

There are thousands of **American Elk**, or **Wapiti**, in Yellowstone Park, several photographs having been taken showing groups of several hundred. The Elk is as tall as a horse, handsomely formed, has a luxurious mane and imposing antlers. Even the young of this species are stately; they "step about with the air of a game cock." It seems remarkable that horns of such great size can be grown to maturity in a few months, to be lost and regrown each year. It is not uncommon for tourists to see Elks and Deer from the roadside while driving over the main highways of the park.

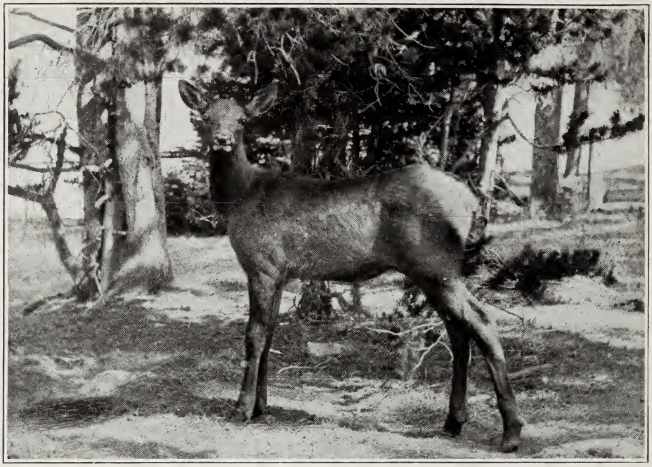
The **Deer** attracts fully as much if not more attention than the Elk on the part of the traveler; two mem-

bers of the Deer family are prominent in the park, the **Black-tailed**, or **Mule Deer**, and the **White-tailed Deer**. The former has larger antlers, consisting of two Y's on each horn. The coat of the Black-tailed Deer is steel gray in winter and gray brown in summer. Except in the park it is being destroyed much faster than it breeds, which means an early extinction of this

A PARK DEER.

species. The White-tailed Deer, unlike the Mule Deer, is a skulker; it hides in the brush and carries its head low, so is seldom seen. Its name is derived from its long bushy tail, which is white underneath and pointed.

The most widely-known member of the cat family in North America is the **Puma**, or **Mountain Lion**; it



A YOUNG ELK.

makes its den among the rocks or in the dense forests and preys upon every creature that can be killed and eaten, doing much harm to the young Elks, Deer, Mountain Sheep and Antelopes. The Mountain Lion is a good climber; it is tall for its weight, thin-sided and on an average about seven feet long from tip to tip. In color it is a brownish drab. On account of the diligent work on the part of the park authorities, this harmful animal is becoming practically extinct in the reserve.

Coyotes, like the Mountain Lion, prey upon the young of many valuable species; they, too, are "shot on sight" by the scouts and cavalrymen in the park.

They are numerous in the lower altitudes of the park; not infrequently their dog-like yelping is heard in the vicinity of the hotels. Washouts and holes in the sides of ravines furnish dens for the coyote, which multiplies with comparative rapidity, having from five to seven puppies each year.

Of the small fur-bearing animals in the park, there are the Otter, Mink, Weasel, Marten, Skunk and Badger.

The **Otter,** being fond of water and living chiefly on fish, makes its home usually under the roots of a large tree overhanging the banks of a stream. It has webbed feet and a thick, flat tail for use in swimming. The fur of the Otter is very fine and of a dark brown color.

The **Mink,** unlike the Otter, is not aquatic, it preys on small mammals and fish when it can procure them, but lives chiefly on birds; it is smaller than the Otter, and its fur, which is yellowish or dark brown, is highly prized.

The **Common Weasel,** or **Ermine,** is a small, long-bodied animal with short legs, the smallest member of the Marten family. It kills grouse, ducks, rabbits and other animals, some ten times its own size, and is considered the most vicious of all animals. In summer its coat is brown, but white in winter, a striking manifestation of Nature's plan of protection.

The **Marten** lives on small rodents, birds and eggs, and spends so much time in the trees that it is often called the **Pine Marten.** Its habitat is on rugged and rocky forest-covered mountains, seldom in open country.

The **Common Skunk** is of conspicuous jet black color, with two wide stripes of white running lengthwise over its back; its fur is becoming valuable on account of the scarcity of Otter, Beaver, Mink and Marten; before being used, however, the white portions are dyed black.

The **Badger** has a broad, flat back, and like the Weasel, has very short legs and is very savage. It lives in burrows and feeds on squirrels and other ground game of every description. Along the park highways the **Tree Squirrel** is often seen, while the **Rock Squirrel** (Chipmunk) is likewise abundant. The **Ground Squirrel** lives in the open country in places like Swan Lake Valley, and is seldom seen in rocky places or in the trees.

The **Woodchuck,** or **Ground Hog** is much larger than any squirrel and is of a rich brown color. He is often seen by the roadside sunning himself near his burrow. In autumn he does not store up a winter's supply of provisions like the squirrel, but takes on a quantity of fat under the skin, then goes quietly to sleep in his burrow for four or five months when the winter is severest; hibernating like the bear.

The **Beaver** is celebrated for his engineering skill in building dams, some of great extent, for the purpose of providing in streams a safe refuge from its enemies. He constructs a water entrance to his house and a place below the freezing line for his winter supply of food. The Beaver is easily recognized by its broad, hairless tail, which it uses in swimming. It is not

A BEAVER HOUSE IN WINTER.

uncommon for Beavers to fell trees which are as much as a foot in diameter, by gnawing, and it is said that they cut them so they will fall toward their pond. The favorite bark prized by them in the park is the aspen. Beaver dams are seen from the roadway in Willow Park, in Beaver Lake at the foot of Obsidian Cliff, and in several other places in the reserve. The Beavers themselves are seldom seen during the daytime, or in fact at any other time; they work in the evening, beginning about an hour before sundown.

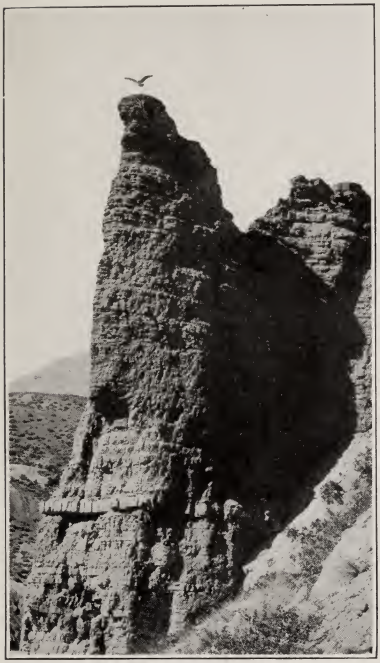
The **Muskrat,** chief member of the family of mice and rats in the park, is found along the banks of streams where burrows can conveniently be made. They are

quite as at home in the water as Beavers, and like the Beavers, they have powerful tails which serve as the motive power in swimming. Muskrat fur when dyed a rich brown black, plucked and dressed, is known as "French seal."

Porcupines until recently have been abundant in the park; their disappearance leads to the theory that they have moved to other localities for some unexplained reason, rather than that they have suddenly become extinct.

They live chiefly upon bark and are equally at home in the tree-top or on the ground. It is known that the Porcupine has caused the death of more than one Mountain Lion and Lynx by means of its quills; any animal attempting to bite the Porcupine gets its mouth filled with spines, which prevent its eating, causing death by starvation. It has been stated that the quills are *thrown* by the Porcupine; this, however, is not the fact. When attacked he huddles into a ball completely covered with quills and strikes his adversary with his tail, at the same time lodging in him many painful spines.

Reptiles are rare in the park region, and it is a comforting fact that the Rattlesnake is not found above 6,000 feet altitude. The average altitude in the park is 8,000 feet.



OSPREY ALIGHTING.

While the variety of birds in Yellowstone Park is large, only a few of each kind are seen. The most important ones are the Eagle, Osprey, Sea Gull, Pelican, Vulture, Goose, Swan, Crane, Crow, Raven, Magpie, Lark, Bluejay, Blackbird, Robin, Grouse, Pheasant, and a large variety of ducks.

The Osprey, or Fish Hawk, usually builds its nest on inaccessible pinnacles and tree-tops near lakes and streams.

The accompanying illustration shows an Osprey's nest in Gardiner Canyon; since the early days the rock pinnacle has had the misleading name of Eagle Nest Rock.

Wild ducks and geese are frequently seen from the roadways; and on Yellowstone Lake are many water fowl.

"Large numbers of the Canada geese have reared their young in the park and showed little fear of molestation by visitors. Also ducks of many varieties. Pelicans and gulls occupy the entire surface of one small island in Yellowstone Lake as their nursery. More than seventy species of birds come to the park to rear their young."—General S. B. M. Young.

SEA GULLS AND PELICANS—YELLOWSTONE LAKE.

The view of the Sea Gulls and Pelicans was taken within sight of the Lake Hotel where there are usually a number of water-fowl.

FISH AND FISHING.

The United States Fish Commission has had an important part in making Yellowstone Park one of the foremost resorts for the angler in America. With the exception of Yellowstone Lake and River, practically none of the streams or lakes had native trout, or fish of any kind, in their waters before the Commission stocked them. Since 1890 more than 100,000 fry have been planted in the various streams, and in 1904 a fish hatchery was built at the West Thumb of Yellowstone Lake.

In explanation of the lack of fish in this region, which seems so well suited to their habits, Mr. David S. Jordon in 1889 wrote as follows:

"The streams of the park are for the most part among the coldest and clearest of the Rocky Mountains, and apparently in every way suitable for the growth of trout . . . . yet, with exception of the Yellowstone itself, all these streams are destitute of fish life. The plateau is fringed with cataracts which no fish can ascend; each stream has a canyon and waterfall near the point where it exchanges the hard bed of lava for the softer rock below. So the best of trout streams for an area of 1,500 square miles are left without trout, because their natural inhabitants cannot get to them."

Today practically all of the streams in the reserve are well stocked, and afford excellent sport for the angler. Among the varieties of trout are: Rainbow, Brook, Loch Leven, Von Behr, and the native trout;

while in the Madison river, near the Western Entrance, are the Grayling, and in the Gardiner River the White fish.

Regulations governing fishing prohibit the use of any other means than the hook and line; no one person is allowed to catch more than twenty fish in one day, and all fish under 8 inches in length must be returned to the water with the least damage possible to the fish.

YELLOWSTONE TREES.

The forests which cover a large portion of Yellowstone Park are chiefly of one species, the **Black Pine** *(Pinus Murrayana),* sometimes called the Lodge pole pine on account of its proneness to grow high with very few branches. Over burnt areas it is the first to spring up; and it grows with comparative rapidity.

Next in importance is the **Balsam** *(Abies subalpina),* found to large extent on steep slopes and in moist places, flourishing near the snow fields. It is considered the most beautiful tree in the park forests.

The **White Pine** *(Pinus flexilis),* unlike the balsam, flourishes best in the lower altitudes. It is a hardy but not especially ornamental tree; specimens are seen along the Gardiner River and in the vicinity of Mammoth Hot Springs.

The **Cedar** *(Juniperus scopulorum),* is seen near Mammoth Hot Springs. It is extremely slow-growing, and while of little commercial value, it is attractive on account of its ancient, gnarled appearance.

Another species of cedar which is common throughout the park is in appearance more like a shrub than a tree; the *Juniperus sibirica.* It is a rich green in color, grows close to the ground and spreads in all directions from the center.

Other trees of less importance are the Dwarf Maple, Quaking Aspen, Willow and Alder.

Forest growths in the park are for the most part stunted; and are of little value as lumber, although the black pine is used extensively for poles and fuel, the latter use being made of the dead and down timber, which is abundant.

FLOWERS OF YELLOWSTONE PARK.

Yellowstone flowers, occurring as they do in almost countless varieties, and in forms frequently quite different from those customary in lower altitudes, afford exceptionally good material for botanical study.

"A plant is not to be studied as an absolutely dead thing, but rather as a sentient being. . . Since man has learned that the universal brotherhood of life includes himself as the highest link in the chain of organic creation, his interest in all things that live and move and have a being has greatly increased. . . . He sees in each of the millions of living forms with which the earth is teeming, the action of many of the laws which are operating in himself; and has learned that to a great extent his welfare is dependent on these seemingly insignificant relations; that in ways undreamed of a century ago they affect human progress." —Clarence Moores Weed.

One of the most beautiful flowers of the region is the **Fringed Gentian** *(Gentiana elegans)*, which grows in profusion in the low, moist meadows and in the vicinity of the geysers. Although usually of a beautiful blue color, specimens have been found in the park which are pure white; these being highly prized by collectors. The Gentian has been chosen for the state flower of Wyoming; its name is from *Gentius,* King of Illyria, who is credited with having first discovered its medicinal virtue.

The state flower of Montana is the **Bitter-Root** *(Lewisia rediviva),* which gives the name to the Bitter-root Mountains and river. It grows abundantly on the hills in the vicinity of Mammoth Hot Springs and flowers in June and July. The flower grows close to the ground and is of a delicate pink color. Its roots, which are fleshy and farinaceous, have been used extensively for food by the Indians. The name *Lewisia* is in honor of Capt. Lewis of the famous Lewis and Clark Expedition.

The **Evening Primrose** *(Oenothera muricata)* is usually found in dry localities, as in Golden Gate Canyon and Snow Pass; although white, or pale yellow, at first, it later turns a delicate rose color and is very fragrant. It has four delicate, spreading petals and is about two and one-half inches across; the blossoms appear only in the evening and lie close to the ground.

The true **Forget-Me-Not** *(Mysotis alpestris)* grows only in the higher altitudes in the park, although similar flowers are common throughout the region; along

the Yellowstone River and on the sides of Mt. Washburn it is very common, growing in thick clusters close to the ground. Its color is pale blue usually, though in some places it is very dark. The name is from the words *mouse* and *ear*, due to the fact that in some species the leaves are short and soft.

The **Harebell** *(Campanula rotundifolia)* grows in the moist, rocky places along the roads, and in the uplands, being quite common in the park. Its bell-shaped flowers of a delicate blue adorn the tips of very slender stems; it blooms from June until September. The name *Campanula* is a diminutive of the Italian *campana,* a bell.

The **Shooting Star** *(Dodecatheon meadia)* grows on moist, rocky places along the roads, in the open woods, and prairies of the park. In color it is a purplish-pink, sometimes white, and seems appropriately named, as the flowers nod with petals bent backward as if the flower were really darting through the air.

The **Larkspur** (*Delphinium,* several species), is quite abundant; it grows in open deciduous woods and prairies, is of dark blue color, and is popular in bouquets. This plant is considered poisonous to cattle and horses; its name *Delphinium* is from *Delphin* in allusion to the shape of the flower, which is not unlike the classic dolphin.

The *Mentzelia decapetala,* a rare, night-blooming flower of exquisite beauty, grows in the vicinity of Mammoth Hot Springs. The average specimen is four inches across, with ten petals, of a pale yellow

color. Another species having five petals is found here, but less commonly. A peculiarity of these plants is their long barbed leaves, which cause the flower to stick to one's coat without other means. Locally the *Mentzelia* has been erroneously called Night-Blooming Cereus.

The **False Dragon Head** *(Physostegia virginiana),* has large, rose or flesh-colored blossoms, which are showy, in general appearance resembling the False Fox-Glove. Its foliage is of a dark, glossy, green color, and it grows in the moist places near the streams and geysers.

The **Ground Phlox** *(Phlox subulata),* grows in many places along the roads, its habitat being in dry, rocky and sandy places. In color the Phlox is found both pink and white; several species occur in the park. The flowers are small, but grow in clusters over a bed of green close to the ground, producing a very striking effect.

The **Lupine** *(Lupinus perennis),* is very common. It is usually a deep purplish-blue, rarely white. Its habitat is in dry, sandy soil, where it grows abundantly. Lupine is derived from *lupus,* a wolf, because these plants were thought to devour the fertility of the soil, while as a matter of fact they seem to prefer the less fertile spots.

The **Columbine** *(Aquilegia canadensis),* is considered one of the most exquisite flowers. It has been selected state flower of Colorado. The flowers are red outside and yellow within, and are large and showy.

They are found in many sections of the park, in localities which are forested and rather high in altitude, as in the neighborhood of Mt. Washburn, Undine Falls and Bunsen Peak.

The **Painted Cup** *(Castilleja coccinea),* is usually an intense red, rarely yellow, and looks as though it had been just dipped in paint. It flourishes in shady, sandy places frequently in grassy patches, where its brilliant color is in marked contrast to the green.

A curious flower which may be dried and still preserves its apparent freshness indefinitely is the **Everlasting** *(Antennaria dioeia rosea)* of a pink, occasionally white color. It occurs in the vicinity of Mammoth Hot Springs and Yellowstone Lake.

Buttercup *(Ranunculus montansis),* a pretty yellow flower, blooms in June and July and is found near the Grand Canyon and Yellowstone Lake.

Umbrella Plant *(Eriogonum subalpinum)* occurs in several species throughout the park and blooms the greater part of the summer.

Dogtooth Violet *(Erythronium grandiflorum)* grows in the rich wet soil in the neighborhood of Swan Lake, in the open woods and thickets, and near the streams. The flower has six yellow long, pointed petals and is about two inches across. The stem is not leafed.

Other flowers of less importance in the park are the yellow pond lily, golden rod, clematis, ox-eye daisy, dandelion and late purple aster.

CAMPING GROUNDS IN YELLOWSTONE PARK.

Mile posts are lettered as follows:

G. C.—For Gardiner City.
M. S.—For Mammoth Hot Springs.
N. B.—For Norris Geyser Basin.
W. B.—For West Boundary.
F. H.—For Fountain Hotel.
U. B.—For Upper Geyser Basin.
W. T.—For West Thumb, Yellowstone Lake.
L. H.—For Lake Hotel.
C. J.—Canyon Junction, near Grand Canyon.

Camping parties should inform themselves as to the rules and regulations of the Park and pay particular attention to extinguishing their camp fires.

It is forbidden to camp within 100 feet of any main traveled road.

The following camping places are used by parties making a tour of the Park:

Camp No. 1, is Mammoth Hot Springs Camp, about a mile south of the hotel on the old Golden Gate road, near the one-mile post. An excellent spring near the road; good grass and plenty of timber near at hand. This camp is convenient to the Hot Spring formations.

Camp No. 2, on Indian Creek, seven miles from Mammoth Hot Springs; good water and grass; wood plenty, and timber for protection; also on Willow Creek.

Camp No. 3, ten and one-quarter miles from Mammoth Hot Springs, near the Apollinaris Spring in the

south end of Willow Park. An abundance of wood, water and grass.

Camp No. 4, thirteen and three-quarter miles from Mammoth Hot Springs. A sign board reads: "100 yards to good camp, wood, water and grass."

Camp No. 5, at Norris. Pass the junction of the Fountain and Canyon roads, follow the latter across the bridge about one-quarter mile and the best camping ground in this vicinity is found; it is nearer the basin, has excellent water, plenty of wood and grass.

Camp No. 6, Elk Park Camp. In going south from Norris, cross Elk Park, pass the two-mile post about one-quarter of a mile, enter the timber on main road about 100 feet and a road leads to the left into a small park—a well-protected camp, wood and grass plenty, water in the Gibbon about 300 yards.

Camp No. 7, in Gibbon Meadow, mouth of Gibbon Canyon, between the three and four-mile posts south of Norris. The favorite camp near the river is west of the road near the four-mile post, plenty of wood in the vicinity, and an abundance of grass and water. The camps east of the road are nearer wood, while water is not as convenient.

Parties Entering at Western Entrance will find excellent camping grounds at the junction of the Gibbon and Madison Rivers.

Camp No. 8, Lower Geyser Basin. There is not any good camping ground between Gibbon Meadow and the valley of the Firehole. Near the seventeen-mile post south of Norris, good camps can be made along the river up to the junction of Nez Perces Creek, along

Nez Perces for a mile on the north bank, and on the West bank of the Firehole for a couple of miles in the vicinity of the old Firehole Hotel; also on the east bank of the Firehole about half a mile south of the Cavalry Cantonment. No camping is allowed near the Fountain Hotel, Geyser and Paint Pots.

Camp No. 9, near Excelsior Geyser on the banks of the Firehole, about half a mile south of the second bridge above Excelsior; plenty of wood and water, with grass on each side of the river, which can be forded near the island.

Camp No. 10, Biscuit Basin, six and one-half miles from Fountain Hotel on the Firehole River, with plenty of wood and grass. This camp is on the north edge of the Upper Geyser Basin, about two miles from Old Faithful, situated in the south end of the basin.

Camp No. 11, near Riverside Geyser. Camping is not allowed in the Upper Basin between the Riverside Bridge and Old Faithful. Riverside camp is reached by leaving the main road just before crossing the bridge. Wood and water are near at hand, and the open parks back afford fair grazing for the stock. This is the most central camp in the Upper Basin, being near several of the large geysers.

Camp No. 12, near Old Faithful. Leave the main road about 200 yards south of Old Faithful; on the banks of the Firehole will be a fair camping place for a medium sized party. Grazing grounds are limited in this section.

Camp No. 13, at the Lone Star Geyser, three and one-half miles south of the Upper Geyser Basin.

Leave the main road at the three-mile post and follow the road leading to the geyser. Excellent water with an abundance of wood and grass.

Camp No. 14, West DeLacy Creek, seven and three-quarter miles from the Upper Basin on the Pacific side of the continental divide, on the west branch of DeLacy Creek, which empties into Shoshone Lake. Well supplied with wood, water and grass.

CAMPING IN THE YELLOWSTONE.

Camp No. 15, on the east branch of DeLacy Creek, one mile east of Camp 16. Either of these camps are first-class and are the only camping grounds between Lone Star and Yellowstone Lake. Teton Point is between Camp 14 and Camp 15.

Camp No. 16, Thumb Bay, Yellowstone Lake. The only available camping grounds here are on the creek south of the lunch station. At times the creek is dry and the only good water is the lake. Plenty of grass is found up the creek—wood in abundance.

Camp No. 17, on Yellowstone Lake. The first good camping grounds north of Thumb Bay on the road to the hotel are thirteen and one-half miles, five and one-half from the outlet. Plenty of wood and water and good grazing a short distance back from the lake shore.

Camp No. 18, on Bridge Bay near the Natural Bridge, seventeen miles from West Thumb, two miles from hotel. This camp is fully as good as Camp 17 and nearer the lake outlet by three and one-half miles.

Camp No. 19, at the outlet of Yellowstone Lake. Excellent camping grounds are found a mile or two north of the hotel. A creek of cold spring water, wood and grass in abundance.

Camp No. 20, at Mud Geysers, seven and one-half miles from the lake and eight and one-half from the Canyon. Good camping grounds.

Camp No. 21, Grand Canyon Camp. The best camping place at the Canyon is one mile south of Canyon Junction. Many parties camp near the Junction, but the camping grounds one mile south are far better. Wood and grass near at hand, the river for water. No camping is allowed nearer the Canyon than at the Junction. Good camping grounds are found on Cascade Creek near the crossing a mile or two north of the hotel, but not convenient for sightseers.

HISTORICAL.

ALTHOUGH part of it was included in the great Louisiana Purchase of 1803, the Yellowstone Park was not then known to white men. Probably the first one who ever saw any of its hot springs or geysers was John Colter who left the celebrated Lewis and Clark Expedition, which was on its return to St. Louis, in 1806 and started for the head waters of the Missouri River to trap and hunt. This lone adventurer passed northward in 1807 from the mouth of the Big Horn to the Forks of the Shoshone River where he discovered an immense tar spring; he continued on through a country where much hot spring and geyser phenomena exist and down the Yellowstone River to the ford at Tower Falls, thence out near the northeastern corner of what is now the National Park.

After four years of peril among the Indians and a miraculous escape from the hostile Blackfeet, he returned in 1810 to St. Louis. His wonderful tales were hard to believe and the place he described, (which was thought to be the product of his imagination), was termed "Colter's Hell."

The Park had been described in part by some of the early hunters, but their knowledge of the place was limited, due to the fact, no doubt, that the region was so difficult to explore; and it is a fact worthy of note that until 1834, no written description of these geyser regions had ever appeared. But in that year, one W. A. Ferris visited the Upper and Lower Geyser Basins and prepared a description of what was there. The next written account of the region appeared ten years

later based on information furnished by the noted Rocky Mountain Guide, James Bridger, "He (Bridger) gives a picture most romantic and enticing of the head waters of the Yellowstone," to quote from Gunnisen's History of the Mormons, "A lake, sixty miles long, cold and pellucid, lies embosomed among high precipitous mountains. On the west side is a sloping plain, several miles wide, with clumps of trees and groves of pine. The ground resounds with the tread of horses. Geysers spout up seventy feet high, with terrific hissing noise, at regular intervals. Waterfalls are sparkling, leaping and thundering down the precipices, and collect in the pool below. The river issues from this lake, and for fifteen miles roars through the perpendicular canyon at the outlet. In this section are the 'Great Springs,' so hot that meat is readily cooked in them, and as they descend on successive terraces, afford at length delightful baths. On the other side is an acid spring, which gushes out in a river torrent; and below is a cave, that supplies 'vermillion' for savages in abundance." Probably no other man in Bridger's time had such a comprehensive knowledge of the Park region.

Captain John Mullan mentions the Park geysers in his report to the government in 1853 and states that he visited them.

Colonel Raynold's Expedition could not penetrate the region when it attempted to explore it in 1860, on account of the snow encountered; the party encircled it however and learned much from the tales of hunters and trappers who had visited it. Colonel Raynold in his report on the "Exploration of the Yellowstone" in

1859-60 states regarding the "Munchausen Tales" about the Park:

"One was to this effect: 'In many parts of the country petrifactions and fossils are very numerous, and, as a consequence, it was claimed that in some locality (I was not able to fix it definitely) a large tract of sage is perfectly petrified, with all the leaves and branches in perfect condition, the general appearance of the plain being like that of the rest of the country, but all is stone; while the rabbits, sage hens and other animals usually found in such localities are still there, perfectly petrified, and as natural as when they were living; and, more wonderful still, the petrified bushes bear the most wonderful fruit; diamonds, rubies, sapphires, emeralds, etc., etc., as large as black walnuts, are found in abundance.' "

The following is taken from the report made to the late Dr. F. V. Hayden, chief of Geological Survey of Territories, by Henry Gannet, E. M., on the geographical field work of the U. S. Geological Survey during the season of 1878:

"The story of the remarkable fruit born by these stone trees is not far from correct, the main difference between the story and the fact being that the fruit is borne on the outside and inside of the trunk of the trees, instead of on the ends of the branches. The mineral species are not as given in the story, either, but this is a matter of no vital importance. In the process of the silicification of wood the last result of all is the production of quartz crystals. The trunk is converted totally into crystalline quartz, radiating from within

outward, the crystals being all crowded out of shape. The inside and outside of the hollow cylinder of quartz, which represents the former tree, are covered with the characteristic quartz pyramids. Such products of silicification are very abundant in the Park, particularly on Amethyst Ridge, and are, undoubtedly, the stone fruit of the petrified trees and bushes. The crystals are colorless, amethystine or yellow, and according to the color, are known to the mountain man as diamonds, amethyst, topaz, etc. It is unnecessary to say that the part of the story relating to animal life was manufactured from the whole cloth.

"In 1863, Captain W. W. DeLacy, in command of a large party of prospectors, left Montana to prospect on the upper waters of the Snake. Striking that river near the junction of Henry's Fork, they followed up the main river through the canyon, prospected in Jackson's Hole, and, not finding gold in paying quantities, they broke up the party, some returning one way, some another. Captain DeLacy, with a portion of the party, followed up the Snake and Lewis Fork, discovering Lewis and Shoshone (DeLacy's) Lakes, the Shoshone and the Lower Basins. The geographical work done by Captain DeLacy on this trip was embodied in a map of Montana, drawn by himself, and published by authority of the territory in 1864-65, and the material thus made public was afterwards used by the land office in the compilation of maps of that region.

"The results of this trip seem to have attracted little or no attention, for we hear of no one going into the country until 1869, when the two prospectors, Cook and

Folsom, made a prospecting tour through the Park. They followed the Yellowstone up to the mouth of the East Fork, then up the latter stream for a few miles, crossing over to the Yellowstone at the Great Falls; thence they went up this stream to the foot of the lake and around the east side of the latter to the extremity of the west arm; thence crossing over to Shoshone Lake and Lower Geyser Basin on the Madison or Firehole, and finally left the country by following down the Madison River.

"Their story, written by Mr. David E. Folsom, and published in the Chicago Western Monthly for July, 1870, immediately attracted attention, and the following summer a large party, composed of prominent citizens of Montana, under the leadership of General Washburn, then Surveyor General of Montana, was made up for the purpose of exploring this region. Among the party was Hon. N. P. Langford, first superintendent of the Park; Hon. Cornelius Hedges, who first proposed setting apart this region as a National Park; Hon. T. C. Everts and S. T. Hauser, accompanied by a small escort from Fort Ellis in charge of Lieut. G. C. Doane.

"This party made quite extensive explorations on the Yellowstone and Madison rivers. Passing up the Yellowstone by the well-known trail, they traveled completely around the lake, visiting all localities of interest along the route, with the single exception of Mammoth Hot Springs, on Gardiner River."

Many of the most prominent features of the Park were named by this party—Mount Washburn the famous promontory, Old Faithful Geyser, the Castle,

Beehive, National Park Mountain, and several other conspicuous points of interest.

While they were near Yellowstone Lake, Mr. Everts strayed away from the party and was lost in this almost inpenetrable country. After making a diligent but unsuccessful search for him, the party was forced to continue their journey; and when they returned, finding that Mr. Everts had not been heard from, two men with provisions and ammunition were immediately sent out in search of him.

In the meantime Mr. Everts had been overtaken by a severe storm and while searching on foot for evidence of a trail, lost his eye glasses and was unable to return to his horses. Three weeks later he was found by Jack Barronette in a starved and half demented condition crawling on his hands and knees. Happily he fully recovered from his unfortunate experience.

The success of the Washburn Expedition and the accounts furnished by its members led to extensive explorations in 1871.

Expeditions under Dr. F. V. Hayden of the United States Geological Survey, and Captains Barlow and Heap of the Engineer Corps of the Army resulted in the discovery of Mammoth Hot Springs and the route from the Lower Basin to the Yellowstone River. A map of the outline of the Yellowstone Lake was made, and collections of specimens were gathered throughout the region. The reports which followed were scientific and very complete.

Until 1872, the region was open to settlers and there

were no restrictions on hunting, trapping, gathering specimens and the fencing-in of the geysers for private gain. But these dangers were foreseen and the region was set aside as a National Park, March 1, 1872, when President U. S. Grant affixed his signature to the Act of Dedication.

THE ACT OF DEDICATION OF YELLOWSTONE NATIONAL PARK.

Approved March 1, 1872.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled:

That the tract of land in the Territories of Montana and Wyoming, lying near the headwaters of the Yellowstone River, and described as follows, to wit: Commencing at the junction of Gardiner River with the Yellowstone River, and running east to the meridian passing ten miles to the eastward of the most eastern point of Yellowstone Lake; thence south along the said meridian to the parallel of latitude passing ten miles south of the most southern point of Yellowstone Lake; thence west along said parallel to the meridian passing fifteen miles west of the most western point of Madison Lake; thence north along said meridian to the latitude of the junction of the Yellowstone and Gardiner Rivers; thence east to place of beginning—is hereby reserved and withdrawn from settlement, occupancy or sale under the laws of the United States, and dedicated and set apart as a public park or pleasure ground for the benefit and enjoyment of the people; and all persons who shall locate, settle

upon or occupy the same or any part thereof, except as hereinafter provided, shall be considered trespassers and removed therefrom.

Sec. 2. The said public Park shall be under the exclusive control of the Secretary of the Interior, whose duty it shall be, as soon as practicable, to make and publish such rules and regulations as he may deem necessary and proper for the care and management of the same. Such regulations shall provide for the preservation from injury or spoliation of all timber, mineral deposits, natural curiosities or wonders within said park and their retention in their natural condition.

The Secretary may, in his discretion, grant leases for building purposes, for terms not exceeding ten years, of small parcels of ground, at such places in said park as shall require the erection of buildings for the accommodation of visitors; all the proceeds of said leases, and all other revenues that may be derived from any source connected with said park, to be expended under his direction, in the management of the same, and the construction of roads and bridle paths therein. He shall provide against the wanton destruction of the fish and game found within said park, and against their capture or destruction for the purpose of merchandise or profit. He shall also cause all persons trespassing upon the same after the passage of this act to be removed therefrom, and generally shall be authorized to take all such measures as shall be necessary or proper to fully carry out the objects and purpose of this act.

In 1873, Captain W. A. Jones, U. S. A., took a

PROF. ARNOLD HAGUE'S CAMP—U. S. GEOLOGICAL SURVEY.

large party through the Park. He entered it from the head of the Stinking Water, crossing one of the many passes near Mt. Chittenden. After visiting most of the points of interest in the Park, he went out via the Upper Yellowstone, on the way verifying the old trapper's legend about the 'Two Ocean River,' and discovering a practical pass (Togwotee Pass) and route from the south to the Park. This discovery was by far the most valuable result of the expedition.

In 1875 Captain William Ludlow, U. S. A., in charge of a reconnaissance in Central Montana, made a flying trip to the Park. He developed little that was new save accurate measurements of the Upper and Lower Falls of the Yellowstone.

General O. O. Howard crossed the Park in his famous pursuit of the Nez Percé Indians in 1877; the year that Col. P. W. Norris was made Superintendent to succeed Hon. N. P. Langford who had held that office five years. Mr. Langford did more for the Park than can be reckoned; he served as Superintendent without pay or remuneration of any kind and had upheld the "National Park Idea" from the time the Expedition of 1870 talked of the plan until the Act of Dedication was finally passed in 1872.

The United States Geological Survey resumed work in the Park in 1878 under Dr. F. V. Hayden; and in 1883 a report was published giving detailed descriptions of the points of interest, as well as scientific discussions of the phenomena observed. This report is beautifully illustrated with color-plates, engravings, diagrams and maps.

In August, 1883, President Arthur with the Secretary of War, Lieutenant-General Sheridan of the Army, Senator Vest and several other distinguished officers and civilians visited the Park in the most elaborate pack-train expedition that has ever been enrolled. The route lay from Green River on the Union Pacific R. R., to Livingston on the Northern Pacific R. R.

Mr. Haynes, Official Photographer of the Park, who accompanied the party procured many interesting photographs on this famous expedition.

In 1886 the administrative policy of the Park was changed. Capt. Moses E. Harris of the military was appointed Superintendent of the Park to succeed Col. D. W. Wear, civilian; and since that time all the superintendents have been officers in the Army.

PRESIDENT ARTHUR'S PARTY AT UPPER BASIN, AUGUST, 1883.

Standing—Reading from left—Col. Mike Sheridan, U. S. A., Gen. Anson Stager, Capt. Philo Clark, U. S. A., Judge Rawlins, Col. J. F. Gregory, U. S. A.

Sitting—Reading from left—Gov. Schuyler Crosby, Mont., Gen. P. H. Sheridan, U. S. A., President C. A. Arthur, Secy. of War Robt. T. Lincoln, Senator Geo. G. Vest.

Winter Exploration in 1887.—In January, 1887, the first successful exploration of the Yellowstone region was made. Lieutenant Fredrick Schwatka of Arctic fame headed the party consisting of F. Jay Haynes, photographer, several eastern gentlemen and a corps of guides, packers and assistants. Their outfit consisted of astronomical instruments, photographic equipment, sleeping bags and provisions which were drawn on toboggans; the party used Norwegian skis and Canadian web snowshoes, but the snow was so light that they sank readily and the toboggans were exceedingly difficult to draw. It took three days to cover

the twenty miles from Mammoth Springs to Norris Basin; and the temperature the first night at Indian Creek was 37° below zero.

Unfortunately Lieut. Schwatka fell ill at Norris and was unable to proceed. Mr. Haynes, desirous of obtaining a collection of winter scenes of Yellowstone Park, employed two of the sturdiest men of the Schwatka Party, and with Edward Wilson, a government scout, resumed the journey.

The toboggans were abandoned and this party resorted to the customary fashion of packing their equipment and provisions on their backs—each man carrying about forty-five pounds.

Norris Basin was a grand sight. Craters heretofore

PHOTOGRAPHER HAYNES, PARK MID-WINTER.

unnoticed by these men familiar with the Park in summer, steamed copiously. The foliage was heavily laden with ice near the steam vents and geysers, producing all the fantastic forms possible to imagine; while the entire basin resembled a vast manufacturing centre.

Tall trees buried in the snow appeared like bushes, sage brush and bowlders were entirely hidden, and the general aspect of the country was completely changed; the average depth of the snow being about eight feet.

The steam rising fully two thousand feet from the geysers in the Upper Basin could be seen from the Lower Basin, nine miles away. The Upper Basin presented the most striking appearance; the greater quantity of steam and more numerous active geysers presented an increased variety of peculiar effects.

The beautifully colored walls of the Grand Canyon were masses of pure white. The north half of the Great Falls hung in immense icicles 200 feet in length. An ice bridge fully 100 feet high was formed at the base of the falls coming up fully to the spray line (about one-third the height of the falls). The brink was frozen over and was hidden in an arch of ice fully a dozen feet thick.

Thousands of elk were seen on the exposed ridges of Mt. Washburn, this being their winter range. The trip over Mt. Washburn was one of hardship and unusual privation; a blinding snowstorm overtook the little party of four which lasted three days; during which time they wandered day and night without shelter, provisions or fire. After the storm abated,

they found their way to Yancey's exhausted after an adventure which nearly cost them their lives.

The circuit covered was about 200 miles, and the thermometer ranged from 10° to 50° below zero during the twenty-nine days consumed in making the trip.

SNOW-SHOE PARTY IN HAYDEN VALLEY.

The Park is an ideal resort in summer, but it will never become a winter resort on account of the extreme rigors of its climate.

Winter Expedition to the Game Ranges in 1894.— Early in March, 1894, a party was organized at Fort Yellowstone for the purpose of visiting the winter ranges of the game, to ascertain, as near as possible, the exact number of buffalo that still exists, and secure photographs of the same. The party consisted of

Captain Scott, Lieut. Forsyth, Scout Burgess, Mr. Burns, Photographer Haynes and three non-commissioned officers. Mounted on the Norwegian snowshoes, with packs of sleeping bags, provisions and camera, they proceeded directly to Hayden Valley *via* Norris and the Grand Canyon. As most of the Buffalo congregate there during the winter months, they found eighty-one buffalo in the valley, seventy-three comprising the main herd, and numerous small groups of elk aggregating fully 300. After a stay of several days in Hayden Valley the party went to Yellowstone Lake. Captain Anderson, Superintendent of the Park, had instructed Scout Burgess not to overlook the country east of the lake, as a small herd of buffalo usually winter there. The first day out from the lake only elk were seen by the scout and his companion, there being no sign of buffalo. They went into camp about twelve miles up Pelican Creek.

The second day they discovered, in a secluded spot, the "cache" of a poacher, very much to their surprise, as it was supposed that no one was in the Park killing game. The "cache" consisted of a canvas tepee, sleeping bag, provisions and toboggan and six buffalo heads suspended in a tree near by. A trace of fire in the tepee led the scout to believe that the poacher was in the vicinity, and to capture him, was the next move. It had been snowing constantly all the morning, and all snowshoe tracks leading from the camp were entirely obliterated. Some five miles from the camp they heard five or six rifle shots fired in rapid succession. Hastening through the timber to the opening in the

direction of the firing, they came directly upon the poacher. He had driven six of the buffalo into the deep snow and slaughtered the entire band. Knowing these men to be of a desperate character, and being armed only with a pistol, it was a brave act for Scout Burgess to arrest him. Fortunately it was snowing hard, and the approach of the scout was not noticed by the poacher or his faithful dog until the arrest was made. He was taken to the Lake Hotel and escorted from there to the guard house at Fort Yellowstone. Besides the twelve buffalo that were killed by this poacher, a small herd of seven were seen in the Pelican country, making less than 100 now in existence. If these can be protected they will increase rapidly, otherwise the only remaining species of large American game (the bison) will soon be exterminated. Elk were seen in the foothills of Mt. Washburn, on Specimen Ridge, along the east fork of the Yellowstone, on Slough Creek and along the Yellowstone to Mt. Everts, in great numbers. Fully 5,000 wintered in the above localities. Small bands of mountain sheep, deer and antelope were seen on Mt. Everts. The open water of the Yellowstone between the lake and falls was alive with duck and swan. The red fox and coyote were numerous, and an occasional black fox and footprints of mountain lion and bear were seen. The party was in the Park about thirty days and traveled over 300 miles

Visitors to the Park each summer are numbered in thousands; they come from all over the world to see wonders that a few years ago no one but the mountain man, had ever heard of. The Park is grow-

ing in popularity each year, and justly so, for where are geysers that can compare to Old Faithful, the Giant, and a thousand others? Is there a pool elsewhere to compare with the Morning Glory? A falls like the Great Falls or a canyon that has both grandeur and beautiful coloring combined, like the Grand Canyon?

SECRETARIES OF THE INTERIOR

Since the Act of Dedication, March 1, 1872.

NAME	From	Date of Commission	Administration
Hon. Columbus Delano.....	Ohio..	Nov. 1, 1870	Pres. Grant
Hon. Zachariah Chandler...	Mich..	Oct. 19, 1875	Pres. Grant.
Hon. Carl Schurz.....	Mo....	Mar. 12, 1877	Pres. Hayes.
Hon. Samuel J. Kirkwood...	Iowa..	Mar. 5, 1881	Pres. Garfield and Arthur.
Hon. Henry M. Teller.....	Colo...	Apr. 6, 1882	Pres. Arthur.
Hon. Lucius Q. C. Lamar...	Miss...	Mar. 6, 1885	Pres. Cleveland.
Hon. William F. Vilas.....	Wis...	Jan. 16, 1888	Pres. Cleveland.
Hon. John W. Noble.....	Mo....	Mar. 6, 1889	Pres. Harrison.
Hon. Hoke Smith.....	Ga....	Mar. 6, 1893	Pres. Cleveland.
Hon. David R. Francis.....	Mo....	Sept. 1, 1896	Pres. Cleveland
Hon. Cornelius N. Bliss.....	N. Y..	Mar. 5, 1897	Pres. McKinley
Hon. Ethan A. Hitchcock...	Mo....	Dec. 21, 1898	Pres. McKinley & Roosevelt.
Hon. James R. Garfield.....	Ohio..	Jan. 15, 1907	Pres. Roosevelt.
Hon. Richard A. Ballinger..	Wash..	Mar. 5, 1909	Pres. Taft.
Hon. Walter L. Fisher	Illinois	Mar. 13, 1911	Pres. Taft
Hon. Franklin K. Lane....	Calif..	Mar. 5, 1913	Pres. Wilson

SUPERINTENDENTS OF YELLOWSTONE PARK FROM 1872 TO 1910.

APPOINTED FROM CIVIL LIFE.

N. P. Langford	May 10, 1872	to April 18, 1877
Philetus W. Norris	April 18, 1877	to Feb. 2, 1882
Patrick H. Conger	Feb. 2, 1882	to July 28, 1884
Robert E. Carpenter	Aug. 4, 1884	to May 29, 1885
David W. Wear	May 29, 1885	to Aug. 1, 1886

ARMY OFFICERS DETAILED FOR DUTY AS ACTING SUPERINTENDENTS

Capt. Moses Harris.....	5th Cav., U. S. A...	Aug. 17, 1886	to May 31, 1889
Capt. F. A. Boutelle.....	1st Cav., U. S. A...	June 1, 1889	to Feb. 14, 1891
Capt. Geo. S. Anderson....	6th Cav., U. S. A...	Feb. 15, 1891	to June 22, 1897
Col. S. B. M. Young.....	3rd Cav., U. S. A...	June 23, 1897	to Nov. 15, 1897
Capt. James B. Erwin.....	4th Cav., U. S. A...	Nov. 16, 1897	to Mar. , 1899
Capt. W. E. Wilder.....	4th Cav., U. S. A...	Mar. , 1899	to June 22, 1899
Capt. Oscar J. Brown.....	1st Cav., U. S. A...	June 23, 1899	to July 23, 1900
Capt. Geo. W. Goode.....	1st Cav., U. S. A...	July 24, 1900	to May 7, 1901
Capt. John Pitcher.....	1st Cav., U. S. A...	May 8, 1901	to May 13, 1907
Gen. S. B. M. Young.....	U. S. A., Retired....	May 14, 1907	to Nov. 27, 1908
Maj. H. C. Benson.....	14th Cav., U. S. A...	Nov. 28, 1908	to Sept. 29, 1910
Lieut. Col. L. M. Brett,..	1st Cav., U. S. A....	Sept. 30, 1910	to

OTHER PERSONS PROMINENT IN PARK AFFAIRS.

Anderson, Ole A., commercialized the practice of coating various articles in the hot water at Mammoth Springs, and conducted this unique business many years.

Arthur, Pres. Chester A., was the first president to visit the Park. He made the memorable trip in 1883 with General Sheridan and party from the Union Pacific R. R. through the Park to the Northern Pacific R. R.

Barlow, Capt. J. W., of the Engineers Corps U. S. Army led one division of the Expedition of 1871 when the Mammoth Hot Springs was discovered.

Baronett, C. J., scout and guide, built the first bridge across the Yellowstone in 1871 east of Yancey's. Mr. Everts lost from the Washburn-Langford Expedition in 1870 was found by him; Baronett Peak commemorates his name.

Bassett Bros., operated the first tourist line in the early 80's through the Park at the Western Entrance, from Beaver Canyon, Idaho, on the Utah Northern R. R.

Bridger, James, who lived from 1804-81, was the leading spirit in the Rocky Mountain Fur Company, the discoverer of Great Salt Lake, and the best informed man of his time on the Yellowstone Park.

Bryant, R. C., conducted camping parties through the Park from the Western Entrance for several years, and in 1912 sold out to Shaw & Powell.

Bunsen, Robt. W., after whom Bunsen Peak was named, invented the Bunsen Burner, Alkalimeter and many other scientific instruments; and advanced the most authoritative explanation of geyser action.

Burgess, Scout J. C., in the winter of 1894 captured a notorious poacher in the Park. This capture led to the passage of the present strict laws protecting the wild animals in Yellowstone Park.

Child, Harry W., now president of the Yellowstone Park Transportation Company and the Yellowstone Park Hotel Company has been in the Park many years. The present high standard of hotel service and transportation is due in a large measure to him.

Chittenden, Col. H. M., of the Corps of Engineers U. S. Army had charge of all the roads and bridges in the Park, for a number of years prior to 1904. He constructed the Stone Arch at the Northern Entrance, the concrete viaduct in Golden Gate and the road through the Hoodoos; he built the steel and concrete arch bridge near the Canyon, and the road to the summit of Mt. Washburn—engineering achievements of the highest order.

Clagett, Hon. Wm. H., delegate from Montana, introduced the Park Bill in the House, Dec. 18, 1871, and Senator Pomeroy of Kansas in the Senate.

Colter, John, a private in the famous Lewis and Clark Expedition was the first white man to visit Yellowstone Park. In 1807 he entered the Park at the southwest and left the region near the northeast corner.

Comstock, Prof. T. B., geologist of Captain Jones Expedition in 1873; the Comstock theory of geyser action appeared in his report of that year.

De Lacy, Capt. W. W., headed a prospecting expedition from Virginia City, Aug. 3, 1863, and discovered the pass between Shoshone Lake and the Upper Basin.
De Lacy Creek was named in his honor.

De Smet, Father, Jesuit missionary, in 1852 gave the first correct location of Yellowstone Park: Between the 43d and 45th degrees of latitude and the 109th and 111th degrees of longitude.

Doane, Lieut. G. C., was in command of the escort of the Washburn-Langford Expedition of 1870. His descriptions of the Canyon and other portions of the Park are most vivid and interesting. In 1875 he escorted Secretary of War Belknap and other distinguished gentlemen through the Park.

Dunraven, Lord, visited the Park in 1874. Dunraven Peak near Mt. Washburn was named after this enthusiastic writer.

Everts, Truman C., member of the Washburn-Langford Expedition, was lost from the party in crossing the continental divide between Yellowstone and Heart Lakes. He wandered 37 days until found by Scout Baronett a few miles from Mammoth Hot Springs. Mt. Everts commemorates his name.

Ferris, W. A., of the American Fur Company, visited the Upper and Lower Basins with two Indians in 1834 and wrote the first authentic descriptions of the geyser basins.

Folsom, W. A., with two companions, C. W. Cook and Wm. Peterson, made a thirty-six day expedition into the Park from Montana in 1869. His account of the trip appeared in the *Western Monthly*, Chicago, in July, 1871.

Gibbon, Gen. John A., commanded an expedition into the Park in 1872. Gibbon Canyon and Falls were named in his honor.

Gibson, Hon. Sir Charles, was first president of the Yellowstone Park Association. Virginia Cascades was named for his daughter.

Grant, Pres. U. S., signed the Act of Dedication, Mar. 1, 1872, creating the Yellowstone National Park.

Hague, Prof. Arnold, of the U. S. Geological Survey compiled a scientific report on Yellowstone Park published in 1899.

Hatch, Rufus, of New York, secured the first franchise for hotel improvements in the Park-1883. He constructed the Mammoth Hotel which was opened in 1884 and later sold to the Yellowstone Park Association.

Hayden, Dr. F. V., has been identified wth the Park as geologist since 1859. The Hayden U. S. Geological Survey Expedition of 1871 resulted in great benefit to the Park. The valley between Yellowstone Lake and the Canyon bears his name.

Haynes, F. Jay, president of the Monida & Yellowstone Stage Company since its organization in 1898 is also Official Photographer of Yellowstone Park. He came to the Park in 1881 as photographer, accompanied President Arthur and General Sheridan on their trip in 1883, and made two winter trips of the Park, 1887 and 1894.

Hedges, Cornelius, member of the Washburn-Langford Expedition. While in camp at the junction of the Gibbon and Firehole rivers, Sept. 19, 1870, first suggested to the party that the region be set aside as a National Park.

Henderson, G. L., brother of Speaker Henderson of Iowa, came to the Park in 1882 as Assistant Superintendent, built the Cottage Hotel at Mammoth Springs in 1883.

Hofer, T. E., President of the T. E. Hofer Boat Company at Yellowstone Lake since 1907. "Billy" Hofer has been connected with the Park as guide since the early 80's.

Holm, "Tex," Cody, Wyoming, has conducted camping parties through the Park several seasons. In 1912 he began to operate in connection with the hotels.

Howard, Gen. O. O., in command of government troops pursued Chief Joseph and the Nez Percé Indians on their hostile raid through Yellowstone Park in 1877.

Hoyt, Hon. John W., Governor of Wyoming, visited the Park in 1881 with the view of opening a road from the southeast. Kepler Cascade near the Upper Basin was named for his son.

Huntley, S. S., succeeded Mr. Geo. W. Wakefield in the stage business in 1892 and was president of the Yellowstone National Park Transportation Company from then until his death in 1901.

Jones, Capt. W. A., commanded an expedition through the Park in 1873, which made its exit through the Absaroka Range east of Yellowstone Lake, at a point now called Jones Pass. In the early 90's he had charge of the road construction as U. S. Engineer.

Joseph, Chief, headed the Nez Percé Indians in their raid through the Park in 1877 entering at the Western, or Madison River Entrance, and making exit at the northeast corner of the Park.

Klamer, H. E., has been identified with the Park since the early 80's. He is now proprietor of a general merchandise and curio store at the Upper Geyser Basin.

Langford, N. P., member of the Washburn-Langford Expedition of 1870; he was the first Superintendent of the Park serving from May 10, 1872 to April 18, 1877. It was largely through his efforts that the region was made a National Park.

Ludlow, Capt. Wm. M., made a report on the Park in 1875 and procured accurate measurements of the Upper and Lower Falls of the Yellowstone.

Lyall and Henderson have been identified with the Park since the early 80's. They now conduct the Postoffice and general store at Mammoth Hot Springs.

Meldrum, Judge, John W., has been U. S. Commissioner in the Park since 1894 with headquarters at Mammoth Hot Springs.

Miles, A. W., president of the Wylie Permanent Camping Company, has been identified with the Park for many years.

Moran, Thos., artist with Dr. Hayden's Expedition in 1871. Artist Point at the Canyon was named in his honor.

McCartney, J. C., took advantage of the squatter's right and located a claim embracing the Mammoth Hot Springs in 1871, prior to the Act of Dedication, and built thereon the first building in Yellowstone Park. The government later reimbursed him to the extent of $5,000 for his rights and improvements.

Norris, Col. P. W., second Superintendent of the Park, served from April 18, 1877, to Feb. 2, 1882; he explored, described and opened up to tourists Norris Geyser Basin and constructed the first wagon roads throughout the Park to the various objects of interest.

Pryor, Geo. R., succeeded Mr. O. A. Anderson as proprietor of the Park Curio Shop at Mammoth Springs in the fall of 1907.

Raynolds, Capt. W. C., of the Corps of Topographical Engineers, U. S. Army headed a government expedition into the region in 1859 for the purpose of determining the sources of the headwaters of the Missouri River.

Reamer, Robt C., the architect who designed and constructed the unique Old Faithful Inn at the Upper Basin in 1903; also the Colonial Hotel at the Lake, the Depot at Gardiner, and in 1911 the new Grand Canyon Hotel.

Roosevelt, Pres. Theodore, assisted in laying the cornerstone of the Arch at Gardiner in April, 1903.

Ryker, J. N., the first observer in the Park in charge of the Weather Bureau Station established at Mammoth Springs in 1903.

Schwatka, Lieut. Fredrick, of Arctic fame, organized the first winter expedition into the region in January, 1887, but was unable to proceed further than Norris. Mr. F. Jay Haynes and Scout Wilson with two assistants made the entire trip around the Park.

Shaw & Powell, conduct camping parties through the Park from the Northern Entrance. Mr. Shaw was captain of the steamer Zillah on Yellowstone Lake, for many years. Mr. Powell has been identified with the tourist business in the Park for a long time.

Sheridan, Gen. Phil., arranged for the escort of the Washburn-Langford Expedition; headed an expedition through the Park in 1882 with Mr. John McCollough as his guest; in 1883 he accompanied President Arthur on his trip. A mountain near Yellowstone Lake bears his name.

Stevenson, James, was Dr. Hayden's right hand man. His name is perpetuated by an island in Yellowstone Lake and a mountain in the adjoining range.

Stuart, James, from Montana headed a large prospecting party near the Park in 1864.

Vest, Senator Geo. G., drew up a bill, which was passed by Congress in 1884, to protect the Park, authorizing the Hon. Secretary of the Interior to grant restricted privileges in the Park for business purposes. He was a member of President Arthur's party in 1883.

Wakefield, Geo. W., Wakefield & Hoffman of Bozeman, Mont., established in the early 80's the first stage line in the Yellowstone Park. They were succeeded by the Yellowstone National Park Transportation Company in 1892.

Wald, Andy, sand artist, originated in 1888 the idea of filling bottles, showing pictures of animals, geysers and scenes with the different colored sands of the Park.

Washburn, Gen. H. D., Surveyor-General of Montana, headed the Washburn-Langford Expedition of 1870. Mt. Washburn, the observatory of the Park, was named in his honor.

Waters, E. C., was general manager of the Yellowstone Park Association from 1887 to 1890; and from 1890 to 1907 operated a line of steamboats on Yellowstone Lake.

Wylie, W. W., of Bozeman, Montana, in 1890, established the Wylie Permanent Camps throughout the Park.

Yancey, John, in 1871 established in Pleasant Valley near Baronett's bridge on the tra l from Gardiner to Cook City (a mining camp just east of the Park), a stopping place for travelers; and lived there until his death in 1905.

YELLOWSTONE NATIONAL PARK RULES AND REGULATIONS.

THE following rules and regulations for the government of the Yellowstone National Park are hereby established and made public, pursuant to authority conferred by section 2475, Revised Statutes, United States, and the act of Congress approved May 7, 1894:

1. **It is forbidden** to remove or injure the sediments or incrustations around the geysers, hot springs, or steam vents; or to deface the same by written inscription or otherwise; or to throw any substance into the springs or geyser vents; or to injure or disturb, in any manner, or to carry off any of the mineral deposits, specimens, natural curiosities, or wonders within the Park.

2. **It is forbidden** to ride or drive upon any of the geyser or hot-spring formations, or to turn stock loose to graze in their vicinity.

3. **It is forbidden** to cut or injure any growing timber. Camping parties will be allowed to use dead or

fallen timber for fuel. When felling timber for fuel or for building purposes when duly authorized, stumps must not be left higher than 12 inches from the ground.

4. **Fires** shall be lighted only when necessary, and completely extinguished when not longer required. The utmost care must be exercised at all times to avoid setting fire to the timber and grass.

5. **Hunting or killing,** wounding or capturing any bird or wild animal, except dangerous animals when necessary to prevent them from destroying life or inflicting an injury, is prohibited. The outfits, including guns, traps, teams, horses, or means of transportation used by persons engaged in hunting, killing, trapping, ensnaring, or capturing such birds or wild animals, or in possession of game killed in the Park under other circumstances than prescribed above, will be forfeited to the United States, except in cases where it is shown by satisfactory evidence that the outfit is not the property of the person or persons violating this regulation, and the actual owner thereof was not a party to such violation. Firearms will only be permitted in the Park on written permission from the superintendent thereof. On arrival at the first station of the park guard, parties having firearms, traps, nets, seines, or explosives will turn them over to the sergeant in charge of the station, taking his receipt for them. They will be returned to the owners on leaving the Park.

6. **Fishing** with nets, seines, traps, or by the use of drugs or explosives, or in any other way than with hook and line, is prohibited. Fishing for purposes of merchandise or profit is forbidden. Fishing may be pro-

hibited by order of the Superintendent of the Park in any of the waters of the Park or limited therein to any specified season of the year, until otherwise ordered by the Secretary of the Interior.

7. **No person** will be permitted to reside permanently or to engage in any business in the Park without permission, in writing, from the Department of the Interior. The superintendent may grant authority to competent persons to act as guides and revoke the same in his discretion, and no pack trains shall be allowed in the Park unless in charge of a duly registered guide.

8. **The herding or grazing** of loose stock or cattle of any kind within the Park, as well as the driving of such stock or cattle over the roads of the Park, is strictly forbidden, except in such cases where authority therefor is granted by the Secretary of the Interior. It is forbidden to cut hay within the boundaries of the Park, excepting for the use of the wild game, and such other purposes as may be authorized by the Secretary of the Interior or the Park superintendent.

9. **No drinking saloon** or bar-room will be permitted within the limits of the Park.

10. **Private notices** or advertisements shall not be posted or displayed within the park, except such as may be necessary for the convenience and guidance of the public, upon buildings on leased ground.

11. **Persons** who render themselves obnoxious by disorderly conduct or bad behavior, or who violate any of the foregoing rules, will be summarily removed from the Park, and will not be allowed to return without permission, in writing, from the Secretary of the Interior or the superintendent of the Park.

12. **It is forbidden** to carve or write names or other things on any of the mileposts or signboards, or any of the platforms, seats, railings, steps, or any structures or any tree in the park.

Any person who violates any of the foregoing regulations will be deemed guilty of a misdemeanor, and will be subjected to a fine as provided by the act of Congress approved May 7, 1894, "to protect the birds and animals in Yellowstone National Park and to punish crimes in said Park, and for other purposes," of not more than one thousand dollars, or imprisonment not exceeding two years, or both, and be adjudged to pay all costs of the proceedings.

INSTRUCTIONS.

(1). The feeding, interference with, or molestation of any bear or other wild animal in the Park in any way by any person not authorized by the superintendent is prohibited.

(2). **Fires.**—The greatest care must be exercised to insure the complete extinction of all camp fires before they are abandoned. All ashes and unburned bits of wood must, when practicable, be thoroughly soaked with water. Where fires are built in the neighborhood of decayed logs, particular attention must be directed to the extinguishment of fires in the decaying mold. Fire may be extinguished where water is not available by a complete covering of earth, well packed down. Especial care should be taken that no lighted match, cigar, or cigarette is dropped in any grass, twigs, leaves, or tree mold.

(3). **Camps.**—No camp will be made at a less distance than 100 feet from any traveled road. Blankets, clothing, hammocks, or any other article liable to frighten teams must not be hung at a nearer distance than this to the road. The same rule applies to temporary stops, such as for feeding horses or for taking luncheon.

Many successive parties camp on the same sites during the season, and camp grounds must be thoroughly cleaned before they are abandoned. Tin cans must be flattened and, with bottles, cast-off clothing, and all other débris, must be deposited in a pit provided for the purpose. When camps are made in unusual places where pits may not be provided, all refuse must be hidden where it will not be offensive to the eye.

(4). **Bicycles.**—The greatest care must be exercised by persons using bicycles. On meeting a team the rider must stop and stand at side of road between the bicycle and the team—the outer side of the road if on a grade or curve. In passing a team from the rear, the rider should learn from the driver if his horses are liable to frighten, in which case the driver should halt and the rider dismount and walk past, keeping between the bicycle and the team.

(5). **Fishing.**—All fish less than 8 inches in length should at once be returned to the water with the least damage possible to the fish. No one person shall catch more than twenty fish in one day.

(6). **Dogs.**—Dogs are not permitted in the Park.

(7). **Grazing animals.**—Only animals actually in use for the purposes of transportation through the Park

may be grazed in the vicinity of the camps. They will not be allowed to run over any of the formations, nor near to any of the geysers or hot springs; neither will they be allowed to run loose within 100 feet of the roads.

(8). **Formations.—No person** will be allowed on any formations after sunset without a guide.

(9). **Hotels.**—All tourists traveling with the authorized transportation companies, whether holding hotel coupons or paying cash, are allowed the privilege of extending their visit in the Park at any of the hotels without extra charge for transportation. However, twenty-four hours' notice must be given to the managers of the transportation companies for reservations in other coaches.

(10). **Driving on Roads of Park.**—(a) Drivers of vehicles of any description, when overtaken by other vehicles traveling at a faster rate of speed, shall, if requested to do so, turn out and give the latter free and unobstructed passageway.

(b) Vehicles, in passing each other, must give full half of the roadway. This applies to freight outfits as well as any other.

(c) Racing on the Park roads is strictly prohibited.

(d) Freight, baggage, and heavy camping outfits on sidehill grades throughout the Park will take the outer side of the road while being passed by passenger vehicles in either direction.

(e) In making a temporary halt on the road for any purpose, all teams and vehicles will be pulled to one side of the road far enough to leave a free and unob-

structed passageway. No stops on the road for luncheon or for camp purposes will be permitted.

(f) In rounding sharp curves on the roads, like that in the Golden Gate Canyon, where the view ahead is completely cut off, drivers will slow down to a walk. Traveling at night is prohibited except in cases of emergency.

(g) Transportation companies, freight and wood contractors, and all other parties and persons using the Park roads will be held liable for violation of these instructions.

(h) Pack trains will be required to follow trails whenever practicable. During the tourist season, when traveling on the road and vehicles carrying passengers are met, or such vehicles overtake pack trains, the pack train must move off the road not less than 100 feet and await the passage of the vehicle.

(i) During the tourist season pack animals, loose animals, or saddle horses, except those ridden by duly authorized persons on patrol or other public duties, are not permitted on the coach road between Gardiner and Fort Yellowstone.

(k) Riding at a gait faster than a slow trot on the plateaus near the hotels where tourists and other persons are accustomed to walk is prohibited.

(l) Mounted men on meeting a passenger team on a grade will halt on the outer side until the team passes. When approaching a passenger team from the rear warning must be given, and no faster gait will be taken than is necessary to make the passage, and if on a grade the passage will be on the outer side. A passenger team must not be passed on a dangerous grade.

(m) All wagons used in hauling heavy freight over the Park roads must have tires not less than 4 inches in width. This order does not apply to express freight hauled in light spring wagons with single teams.

(11). **Liquors.**—All beer, wine, liquors, whisky, etc., brought into the Yellowstone National Park *via* Gardiner to be carried over the roads through the reservation to Cooke City, must be in sealed containers or packages, which must not be broken in transit.

(12). **Miscellaneous.**—Automobiles are not permitted in the Park.

Persons are not allowed to bathe near any of the regularly traveled roads of the Park without suitable bathing clothes.

(13). **Penalty.**—The penalty for disregard of these instructions is summary ejection from the Park.

NOTICES.

(a). **Boat Trip on Yellowstone Lake.**—The excursion boat on Yellowstone Lake plying between the Lake Hotel and the Thumb Lunch Station at the West Bay is not a part of the regular transportation of the Park, and an extra charge is made by the boat company for this service.

(b). **Side Trips in Park.**—Information relative to side trips in the Park and the cost thereof can be procured from those authorized to transport passengers through or to provide for camping parties in the Park; also at the office of the Superintendent.

(c). All complaints by tourists and others as to service, etc., rendered in the reservation should be made to the Superintendent in writing.

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THE YELLOWSTONE PARK AND HOW IT WAS NAMED.

The Devil was sitting in Hades one day,
In a very disconsolate sort of a way.
One could tell from his vigorous switching of tail,
His scratching his horn with the point of his nail,
That something had gone with His Majesty wrong,
The steam was so thick and the sulphur so strong.
He rose from his throne with a gleam in his eye,
And beckoning an agate-eyed imp standing by,
Commanded forthwith to be sent to him there
Old Charon, employed in collecting the fare
Of the wicked, who crossed the waters of Styx,
And found themselves soon in a deuce of a fix.

Old Charon, thus summoned, came soon to his chief.
As the Devil was angry, the confab was brief.
Says the Devil to Charon, "Now, what shall I do?
The world it grows worse and grows wickeder, too;
What with Portland, Chicago, Francisco, New York,
I get in my mortals too fast for my fork;
I haven't the room in these caverns below,
St. Peter, above, is rejecting them so.
So hie you, my Charon, to earth, far away.
Fly over the globe without any delay,
And find me a spot quite secluded and drear,
Where I can drill holes from the center in here.
I must blast out more space; so survey the spot well,
For the project on hand is the enlargement of Hell.

"But recollect one thing, Old Charon, when you
Can locate the district where I can bore through,
There must be conveniences scattered around
To carry on business when I'm above ground.
An 'ink-pot' must always be ready at hand
To write out the names of the parties I strand.
There must be a 'punch bowl,' a 'frying-pan,' too,
A 'cauldron' in which to concoct a 'ragout.'
An 'old faithful' sentinel showing my power
Must shoot a salute on the earth every hour,
And should any mortal by accident view
The spot you have chosen, why, this you must do:
Develop a series of pools, green and blue,
That while these poor earth bugs may beauties admire
They'll forget that below I'm poking the fire.
Now fly away, Charon, be quick as you can,
For my place here's so full that I can't roast a man.

To earth flew fleet Charon, to regions of ice;
He found these too cold—so away in a trice
He sought a location in Africa's sands,
He prospected, and finding too much on his hands
He cut out Australia, Siberia, too,
The north part of China—no! they would not do;
Till just as about to relinquish the chase
He stumbled upon a most singular place.
'Twas deep in the midst of a mountainous range,
Surrounded by valleys secluded and strange,
In a country the greatest, the grandest, the best
To be found upon earth—America's West.
Here the crust seemed quite thin and the purified air,
With the chemicals hidden around everywhere,
Would soon make the lakes that the Devil desired;
So he flew to Chicago and there to him wired:
"I've found you a place never looked at before;
You may heat up the rocks, turn on water, and bore."

Then the Devil with mortals kept plying the fire,
Extracting the water around from the mire,
And boring great holes with a terrible dust,
Till soon quite a number appeared near the crust.
Then he turned on the steam—and lo! upward did fly,
Through rents in the surface, the rocks to the sky.
Then with a rumble there came from each spot,
Huge volumes of water remarkably hot,
That had been there in caverns since Lucifer fell—
Thus immensely enlarging the confines of Hell,
And it happens that now when Old Charon brings in
A remarkable load of original sin,

That His Majesty quietly rakes up the coals,
And up spouts the water, in jets, through the holes,
One may tell by the number of spurts when they come,
How many poor mortals the Devil takes home.

But Yankees can sometimes, without doing evil,
O'ermatch in sagacity even the Devil.
For not long ago Uncle Sam came that way
And said to himself, "Here's the Devil to pay.
Successful I've been in all previous wars;
Now Satan shall bow to the Stripes and the Stars.
This property's mine, and I hold it in fee;
And all of this earth shall its majesty see.
The deer and the elk unmolested shall roam,
The bear and the buffalo each have a home;
The eagle shall spring from her eyrie and soar
O'er crags in the canyons where cataracts roar;
The wild fowls shall circle the pools in their flight,
The geysers shall flash in the moonbeams at night,
Now I christen the country—let all nations hark!
I name it the Yellowstone National Park."

Wm. Tod Helmuth.

Grand Canyon, August, 1894.

THE YELLOWSTONE-WESTERN STAGE COMPANY.

(Operating from the Western Entrance.)

The Yellowstone-Western Stage Company operates a line of four-horse Concord coaches from Yellowstone, the Western Entrance, through the Park in connection with the hotels. Passengers holding tickets O. S. L. R. R. to N. P. Ry. are transferred to the coaches of the Y. P. T. Co. at Mammoth Hot Springs after the tour of the Park has been made. Parties desiring private conveyances may arrange for them with the Y-W Stage Co. at Yellowstone, Mont.

For particulars and description of the tour address:

THE YELLOWSTONE-WESTERN STAGE CO.

Yellowstone Park, June until October.

St. Paul, Minnesota. October until June.

THE WYLIE CAMPING COMPANY.

The Wylie Company has established nine permanent camps at various points in the Park, and provides transportation for the Park tour from both Gardiner and Yellowstone. They are as follows: Swan Lake Camp, Gibbon Camp, Riverside Camp, Upper Basin Camp, Thumb Camp, Lake Camp, Sylvan Lake Camp, Canyon Camp and Camp Roosevelt. Camp Roosevelt, near Tower Falls, is not included in the regular Wylie tours from either entrance. All these camps are equipped for night accommodations except the Gibbon and Thumb Camps.

For particulars address,

WYLIE PERMANENT CAMPING CO.,

Gardiner, Mont. June until October.

Livingston, Mont. October until June.

THE YELLOWSTONE PARK HOTEL COMPANY.

The seven splendid hotels situated at various points in the Park are owned and operated by the Yellowstone Park Hotel Company. They are first-class in every respect. Perhaps the most talked of hotel is the Old Faithful Inn, built entirely of logs, and at a cost of more than $200,000. The Colonial Hotel at Yellowstone Lake and the new Grand Canyon Hotel have the greatest capacities. Guides, private conveyances, fishing tackle and riding horses are to be had at all the hotels, and telegraphic communication is maintained at all times with the outside world.

THE YELLOWSTONE PARK TRANSPORTATION COMPANY.

(Operating from the Northern Entrance.)

The Yellowstone Park Transportation Company operates a line of four-horse Concord coaches over the route from the Northern Entrance in connection with the hotels from the Station at Gardiner. Six-horse Concord coaches ply between there and Mammoth Springs. Parties desiring private conveyances for the Park Tour may arrange for them at Mammoth Hotel. Tourists holding tickets N. P. Ry. to O. S. L. R. R. are transferred to the Y-W coaches at Norris Basin after making the tour of the Park.

For particulars address:

THE YELLOWSTONE PARK TRANSPORTATION CO.,

Yellowstone Park,
June until October.

Helena, Mont.
October until June.

SHAW & POWELL CAMPING CO.

The Shaw & Powell Camping Co., has established camps at various points in the Park, and provides transportation for the Park tours from both Gardiner and Yellowstone. These permanent camps were erected in 1913 and afford night accommodations, at the principal points and transportation through the Park.

For particulars address:

SHAW & POWELL CAMPING CO.,
Livingston, Mont.

WHERE TOURIST SUPPLIES MAY BE PURCHASED

MAMMOTH HOT SPRINGS:

Haynes Photo Stand—In hotel, full line of photographic views, post cards, souvenir spoons, guide books, etc., by the Official Photographer.

Post Office Store—General merchandise, tourist supplies and curios.

Park Curio Shop—Coated articles, sand, curios, Haynes Photographic Publications.

UPPER GEYSER BASIN:

Haynes Picture Shop—Complete line of Haynes Photographic Publications, souvenir spoons, post cards, guide books, etc., private parties photographed. (miniature geyser on exhibition; larger geysers on the formation announced by the electric Siren).

Klamer Curio Store—General merchandise, tourist supplies and curios.

YELLOWSTONE LAKE:

Boat Company Store—General merchandise, tourist supplies and curios.

GRAND CANYON:

Haynes Photo Stand—In hotel, full line of photographic views, post cards, souvenir spoons, guide books, etc., By the Official Photographer. Parties Photographed.

THROUGHOUT THE PARK:

News stands in hotels, Wylie Camps and Shaw & Powell Camps.

DISTANCES.

From Northern Entrance:	Miles
Gardiner City (G. C.) to Mammoth Springs (M. S.)	5
Mammoth Springs to Norris Basin (N. B.)	20
Norris Basin to Fountain Hotel (F. H.)	20
From Western Entrance:	
Yellowstone, Mont. (W. B.) to Fountain Hotel (F. H.)	20
Fountain Hotel to Upper Basin (U. B.)	9
Upper Basin to West Thumb of Lake (W. T.)	19
West Thumb to Lake Hotel (L. H.)	15
Lake Hotel to Canyon Junction (C. J.)	16
Canyon Junction to Norris Basin (N. B.)	11
Norris Basin to Yellowstone, Mont. (W. B.)	27

YELLOWSTONE PARK TRAVEL.

(COMPILED FROM REPORTS OF THE VARIOUS SUPERINTENDENTS)

From 1872 to 1894 no complete records were kept including all visitors. Estimates range from one to five thousand each year.

YEAR	Persons	YEAR	Persons
1895	5,438	1905	26,188
1896	4,659	1906	17,172
1897	10,680	1907	16,414
1898	6,534	1908	18,748
1899	9,579	1909	32,545
1900	8,928	1910	19,575
1901	10,769	1911	23,054
1902	13,433	1912	22,970
1903	13,165	1913	24,929
1904	13,127		

ALTITUDE OF PRINCIPAL MOUNTAINS.

	Feet		Feet
Avalanche Pk	10,550	Mt. Langford	10,902
Bunsen Peak	8,775	Quadrant Mt	10,127
Cathedral Pk	10,650	Mt. Sheridan	10,385
Electric Peak	11,155	Mt. Stevenson	10,350
Mt. Chittenden	10,150	Table Mt	10,850
Mt. Everts	7,600	Top Notch Pk	10,050
Mt. Holmes	10,350	Mt. Washburn	10,388

HAVE YOUR PARTY PHOTOGRAPHED

The Haynes Studios have experienced photographers, prepared at all times to photograph STAGE PARTIES, GROUPS and INDIVIDUALS at the chief points of interest in the Park.

The photographs are made on the finest paper, and are put in artistic folders, making very desirable souvenirs.

HAYNES
PICTURE SHOP
Upper Geyser Basin

HAYNES
PHOTOGRAPH STAND
In the Grand Canyon Hotel

HAYNES STUDIO
Mammoth Hot Springs
Office in Mammoth Hotel

Geysers, Springs, Terraces, Etc., Described Herein.

YELLOWSTONE NATIONAL PARK